DOCUMENT RESUME

ED 304 568 CE 052 099

AUTHOR Gagnon, Dean P.; Keith, Kevin A.
TITLE A Guide to Curriculum Planning in Agriculture Education. Bulletin No. 8426.
INSTITUTION Wisconsin State Dept. of Public Instruction, Madison.
PUB DATE 88
NOTE 144p.
AVAILABLE FROM Publication Sales, Wisconsin Department of Public Instruction, 125 South Webster Street, P.O. Box 7841, Madison, WI 53707-7841.
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01/PC06 Plus Postage.
DESCRIPTORS Advisory Committees; *Agribusiness; *Agricultural Education; *Agricultural Occupations; *Agricultural Production; Agricultural Supplies; Course Content; Crop Processing Occupations; *Curriculum Development; Delivery Systems; Demand Occupations; Disabilities; Models; *Occupational Clusters; Professional Development; Secondary Education; Sex Fairness; Student Organizations; Units of Study

ABSTRACT

This guide provides procedures and information to assist local educators in improving or developing contemporary, comprehensive curricula in the field of agriculture education. Section 1 introduces seven agricultural employment clusters that the guide explores to show how rapidly career opportunities have expanded. Section 2 describes a process to effect sound curricular revisions and to adapt that process to apply specifically to curricular efforts in agriculture education. Section 3 applies these ideas in presenting a specific curriculum model and content units for agriculture education. Five sample units are included: dairy marketing, environmental conservation, exploratory course, forestry, and parliamentary procedure. Each unit contains a general description, objectives, competencies, subject matter outlines, and motivational and learning activities. Section 4 discusses specific delivery mechanisms: organizations (e.g., Future Farmers of America), advisory committees, problem-solving approach, and supervised occupational experience. Section 5 lists names and addresses of professional organizations, provides a professional checklist for instructors of agriculture and a chart of instructional resources by source (name and address) and type of material available, and presents a 10-item reference list. Appendixes include information and sample forms related to sex equity, reaching special needs students, and unit evaluation. (YLB)

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A GUIDE TO CURRICULUM PLANNING IN

Agriculture Education

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A Guide to Curriculum Planning in Agriculture Education

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This publication is available from:

Publication Sales
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Bulletin No. 8426

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Foreword

Agriculture is an expanding field in many ways, one that is rapidly becoming more technical and scientific in nature. Although opportunities in small, family-owned, production-agriculture operations have declined in Wisconsin and nationally, labor department statistics indicate growth in agribusiness, agriscience, agritechnology, and related fields. As a result of these changes, there will be new and emerging careers in the agricultural industries. Secondary school agriculture programs, therefore, must change to meet the changing needs of students and employers.

This guide addresses the new and emerging agriculture curriculum, education for employment, and related occupational skill development. It also provides recommendations for integrating and reinforcing basic reading, writing, mathematics, and employability skills in the agriculture education program.

The information in this guide represents the forward-thinking of leading agriculture educators in our state. I encourage school districts to use and adapt it as needed to meet the individual needs of local communities as they prepare students for work or further study in the agriculture industry.

Herbert J. Grover
State Superintendent

Acknowledgments

This curriculum revision project originated with the suggestions, interest, time, and expertise of the members of the Secondary Curriculum Committee of the Wisconsin Association of Vocational Agriculture Instructors (WAVAI). Members of the committee are

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Robert Vandenbusch
Shawano

Robert Voss
Monticello

Edward Walker
Hartford

Special appreciation for their guidance and suggestions also should be given to the high school instructors who assisted in the development of the original curriculum project proposal. They are

DeWayne Benedict
River Falls

Tom Wells
New Richmond

Tim Wyss
Clear Lake

In addition, the following people provided their expertise in writing, reading, critiquing, and/or revising during the preparation of this guide.

Robert Campbell
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University of Wisconsin-Madison

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Finally, we would like to thank our colleagues at the Department of Public Instruction who assisted with the preparation of the manuscript, especially Kathleen D. McCleave, our editor. Others deserving thanks are Debra J. Motiff, word processing operator/typesetter; Neldine Nichols, photographer; Victoria Rettenmund, graphic artist; and Kris Whitman, proofreader. Martin Rayala, DPI art education supervisor, provided the cover illustration and hand-lettering.

Introduction

The purpose of this guide is to provide procedures and information to assist local educators to improve or develop contemporary, comprehensive curriculums in the field of agriculture education. The guide explores seven agricultural employment clusters, noting how rapidly career opportunities have expanded. They are

- agriculture science/production management;
- agriculture processing/food and fiber;
- agriculture marketing/distribution and retail services;
- agriculture supplies and services;
- agriculture mechanization/engineering and technical support services;
- agriculture resources management; and
- professional employment in agriculture.

A schematic of the curricular recommendations for agriculture education, showing the preparation for work in these areas, is included in Section 3.

This guide was prepared to help school districts develop a course of study in agriculture, not to mandate one. It reflects the most recent direction and thinking in the field. It is expected that districts will adapt, modify, and add to these recommendations to provide the best possible preparation of their students for future employment or further study in agriculture-related areas.

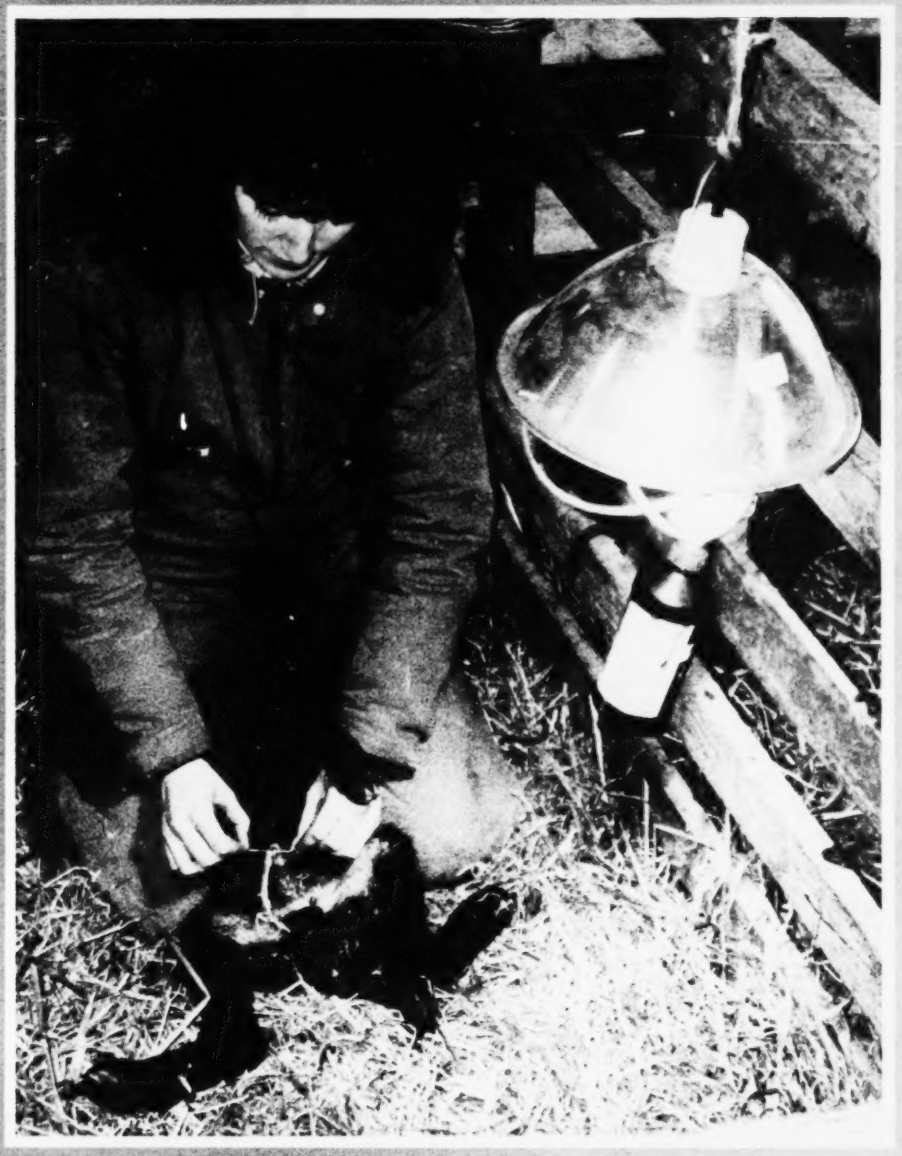
This guide contains five sample instructional units to be used in planning and developing course content at the local level. The DPI will publish additional units, under separate cover, as a supplement to this guide.

The guide and the sample instructional units are subject to changes and continuous improvement. We encourage suggestions for improving these publications; please contact the agriculture education consultants at the department.

Mission and Historical Base

1

Importance
Employment Clusters
Historical Development



Importance

Today's agriculture is biotechnology, international marketing, genetics, engineering, food science, computers, horticulture, communications, veterinary science, and much more.

Agriculture is our nation's largest employer. Today's agriculture is biotechnology, international marketing, genetics, engineering, food science, computers, horticulture, communications, veterinary science, and much more. Its future depends on having our brightest young people become leaders in science, production, processing, resource management, service, and business. The U.S. Department of Agriculture recently projected career opportunities foreseen in agriculture in the twenty-first century.

- 32 percent will be careers in marketing, merchandising, and sales.
- 29 percent will be careers in science, engineering, and related professions.
- 14 percent will be careers as managers and financial specialists.
- 11 percent will be of a social service nature.
- 8 percent will be in the areas of agricultural production.
- 6 percent will be in the fields of education and communications.

The average annual demand for university and vocational technical college graduates with expertise in agriculture will exceed the expected supply by 13 percent over the next several years, according to a recent U.S. Department of Agriculture study. Preparation for these advanced careers at colleges and universities will be greatly enhanced by high school agriculture education and FFA experiences.

In Wisconsin, agriculture is a basic industry that supports many other sectors of the state's economy. Agriculture and agribusiness are big business in Wisconsin. More than $27 billion is invested in farmland, buildings, crops, livestock, and machinery. Cash receipts from the sale of agricultural products total more than $5 billion annually. Agribusiness generates additional billions of dollars for the Wisconsin economy. The large volume of agricultural goods moving from Wisconsin farms provides employment to thousands of workers who transport, process, and market food products.

Production receipts show that Wisconsin farmers rank among the leaders in many commodity categories, compared to other states. Chart 1—which lists commodities plus the state ranking, unit production totals, Wisconsin production, U.S. production, and identification of the leading state for each commodity—shows the importance of agriculture in Wisconsin.

Diversity is a key element in the state's agriculture.

Wisconsin also has a well-deserved reputation as America's dairyland, ranking first in the production of many dairy products. The state produces 17 percent of the nation's milk, 35 percent of the cheese, one-fourth of the butter, and a large variety of milk by-products. Dairying provides almost 60 percent of Wisconsin's agricultural income. But Wisconsin is more than just dairying. Diversity is a key element in the state's agriculture. Wisconsin farmers produce a variety of animal and crop food products in large quantities. With more acres of processed vegetables than any other state, Wisconsin produces one-fourth to one-third of the nation's

Wisconsin's Rank by Agricultural Receipts

	Commodity	Rank among States	Unit	Production			
				Wisconsin (000)	% of U.S.	United States (000)	Leading State
Cash Receipts[1]	Livestock and products	5	Dols.	3,982,463	5.7	69,622,846	Texas
	Crops	24	Dols.	1,069,964	1.4	73,908,856	California
	All commodities	8	Dols.	5,052,427	3.5	143,531,702	California
Dairy[1]	Milk production	1	Lbs.	25,107,000	17.5	143,667,000	Wisconsin
	Butter	1	Lbs.	295,582	23.7	1,247,792	Wisconsin
	Cheese						
	American	1	Lbs.	1,089,231	38.2	2,854,409	Wisconsin
	Swiss	2	Lbs.	40,868	18.3	222,886	Ohio
	Muenster	1	Lbs.	67,120	81.8	82,096	Wisconsin
	Brick	1	Lbs.	10,410	51.7	20,131	Wisconsin
	Italian	1	Lbs.	484,132	33.7	1,436,206	Wisconsin
	Blue	1	Lbs.	19,661	59.0	33,337	Wisconsin
	Total cheese excluding cottage cheese	1	Lbs.	1,778,265	35.4	5,024,873	Wisconsin
	Condensed milk, bulk						
	Sweetened, whole	1	Lbs.	64,239	92.5	69,481	Wisconsin
	Sweetened, skim	1	Lbs.	45,218	91.3	49,551	Wisconsin
	Unsweetened, whole	1	Lbs.	121,033	44.5	272,044	Wisconsin
	Unsweetened, skim	5	Lbs.	71,964	8.6	837,415	California
	Dry products						
	Nonfat dry milk for human use	3	Lbs.	123,158	8.9	1,390,033	California
	Nonfat dry milk for animal feed	3	Lbs.	492	6.0	8,262	California
	Buttermilk	2	Lbs.	10,618	20.6	51,523	Minnesota
	Whey products						
	Dry whey	1	Lbs.	431,769	43.8	986,829	Wisconsin
	Lactose for human use	1	Lbs.	33,313	29.7	111,982	Wisconsin
	Whey protein concentrate for human use	2	Lbs.	25,221	32.6	77,399	Wisconsin
	Whey solids in wet blends	1	Lbs.	55,824	44.1	136,341	Wisconsin
Livestock and Poultry	All cattle and calves[2]	8	Head	4,280	4.1	105,468	Texas
	Milk cows[2]	1	Head	1,892	16.9	11,179	Wisconsin
	All hogs and pigs[3]	11	Head	1,250	2.4	52,298	Iowa
	Turkeys raised[1]	10	Birds	6,150	3.3	185,282	North Carolina
	Mink pelts[4]	1	Pelts	1,188.8	28.2	4,218.4	Wisconsin
Crops[1]	Corn for grain	7	Bu.	358,450	4.0	8,865,006	Iowa
	Corn for silage	1	Tons	11,250	11.0	102,623	Wisconsin
	Oats	4	Bu.	51,480	9.9	518,626	South Dakota
	All hay	1	Tons	11,120	7.5	148,959	Wisconsin
	All potatoes	5	Cwt.	24,130	6.0	404,131	Idaho
	Tobacco	9	Lbs.	17,560	1.2	1,512,970	North Carolina
	Cherries, tart	4	Lbs.	8,500	3.0	286.2	Michigan
	Cranberries	2	Bbl.	1,163	33.9	3,426	Massachusetts
	Mint for oil	4	Lbs.	337	5.1	6,634	Washington
	Carrots[5]	5	Cwt.	1,645	7.2	22,861	California
	Sweet corn for processing	2	Tons	668.8	25.3	2,640.0	Minnesota
	Green peas for processing	1	Tons	160.9	27.8	577.8	Wisconsin
	Beans, snap, for processing	1	Tons	248.8	35.4	702.0	Wisconsin
	Cucumbers for pickles	4	Tons	62.0	8.9	694.4	Michigan

[1]1985 production [2]January 1, 1986, inventory [3]December 1, 1985, inventory [4]1984 production [5]Includes portion processed

Wisconsin Department of Agriculture, Trade, and Consumer Protection (May 1986)

peas, sweet corn, and snap beans. In addition to being first in the production of mink pelts and hay, Wisconsin is among the top ten in output of cranberries, tart cherries, maple syrup, mint, potatoes, oats, corn for grain, corn for silage, hay, cattle, and turkeys.

Employment Clusters

Given the importance of agriculture to Wisconsin, education in agriculture offers opportunities for the state's young men and women to become aware of postsecondary educational programs that are agriculturally related and/or to develop entry-level skills for the wide array of agricultural jobs. The national labor force is estimated to include approximately 105 million people. More than 20 percent of them have jobs directly in agriculture and the performance of countless others is enhanced by the attainment of knowledge, attitudes, and skills in agriculture. A recent publication of the National FFA Center noted:

Today's agriculture has more than 200 rewarding and challenging careers . . .

> Today's agriculture has more than 200 rewarding and challenging careers . . . . Approximately 22 million people now work in agriculture and ag-related fields. But only 10 percent are directly involved in traditional farming. The rest work in agribusiness, communications, science, government, education, processing and distribution, marketing and sales, as well as dozens of other occupations which serve the farmer or the total agricultural industry. As new technologies and new job opportunities emerge, so will the need for well-trained and educated new people.[1]

In midwestern states, such as Wisconsin, 34 percent of the labor force is employed in jobs related to agriculture, a figure higher than the national percentage. There are 526,690 jobs in agriculture in Wisconsin, ranking it ahead of such agricultural states as Indiana, Minnesota, Iowa, Kentucky, Kansas, Nebraska, and North and South Dakota. Farmers comprise 13.6 percent of the total agriculture jobs nationally (34.7 percent in the Midwest), followed by:

30.5%	trade	7.8%	food processing
14.5%	eating places	7.0%	other manufacturing
12.1%	other	3.5%	transportation
11.0%	textiles		

(Adjustments have been made in each category to reflect only agriculture weight.)

If a five percent turnover in these jobs occurs annually, approximately 26,000 agricultural workers would be needed to meet Midwest industry needs.

If a five percent turnover in these jobs occurs annually, approximately 26,000 agricultural workers would be needed to meet Midwest industry needs. Fewer than 6,000 are currently graduating from the agriculture education programs. This indicates a need for expansion of the

agriculture education programs designed to provide entry-level knowledge, attitudes, and skills for agricultural occupations, especially those common to the Midwest and Wisconsin, and to provide a solid foundation for postsecondary study.

Education in agriculture includes topics that both create awareness and provide entry-level skills in a wide variety of occupations. The Education Committee of the state's Agribusiness Council identified seven employment clusters that help in defining the occupations requiring agricultural knowledge, attitudes, and skills. The seven employment clusters are given here, along with suggested careers available in each cluster. In each case the list is not meant to be exhaustive, but merely to give an idea of the wide variety of employment opportunities in modern agriculture.

Agriculture Science/Production Management. This cluster includes all production agriculture industries, such as dairy, livestock, small animal, poultry, farm management, soil fertility, crop production, horticulture production, science, and the like. It also includes related sciences, such as genetics, reproduction, and nutrition.

agronomist
aquaculturist
beekeeper
cash grain farmer
cattle rancher
certified seed grower
citrus grower
cotton producer
dairy farmer
dairy herdsperson
dairy management specialist
dairy nutrition specialist
diversified crop farmer
farm manager
fish farmer
fish hatchery manager
florist
fruit grower
greenhouse manager
greenskeeper
horse rancher
horticulturist
hydroponics grower
landscaper
livestock producer
milking machine operator
mink producer
mushroom grower
nursery operator
nut orchardist
orchard supervisor
peanut producer
potato producer
poultry hatchery manager
poultry producer
rice farmer
shrimp farmer
tobacco grower
tree and vine fruit grower
tree farmer
turf farmer
turf manager
vegetable grower

"Let us never forget that the cultivation of the earth is the most important labor of man."
—Daniel Webster

Agriculture Processing/Food and Fiber. This cluster includes all areas of processing food and fiber products, including research and development of new products to keep pace with changing consumer demand. This would include meat processing, dairy processing, crop and grain processing, product grading, product identification, and procedures for processing.

butcher
cheese grader
cheesemaker
christmas tree grader
cotton grader
cotton processing supervisor
floral arranger
food processing supervisor
food scientist
fruit grader/inspector
fruit press operator
grain grader/inspector
meat cutter
meat grader/inspector
milk plant supervisor
product development
quality control supervisor
quality assurance specialist
winery supervisor
wool grader
wool processing supervisor

Agriculture Marketing/Distribution and Retail Services. This cluster includes global marketing concepts, advertising, sales, transportation, futures markets, commodities trading, economics, and business management/computer applications in agriculture.

"All the flowers of all the tomorrows are in the seeds of today . . ."
—Author Unknown

agricultural economist
agricultural marketing representative
animal health products distributor
artificial breeding distributor
chemicals distributor
commodities broker
floral shop operator
fruit distributor
futures broker
grain broker
grain buyer
grain trucker
harvest contractor
livestock buyer
livestock trucker
market analyst
produce buyer
produce trucker
retailing manager
sales manager
salesperson
tobacco buyer
wholesale sales manager
wool buyer

Agriculture Supplies and Services. This cluster includes both supplies and services to and from the agriculture industry. Farm feed and supply industry, business management, inventory control, agribusiness mathematics, and career opportunities in the supply and service industry are all included here.

aerial crop duster
agricultural auctioneer
agricultural equipment dealer
agricultural information director
agricultural photographer
animal breeder
animal groomer
animal inspector
animal trainer
artificial breeding technician
biostatistician
cattle buyer
chemical applicator
computer analyst/operator/programmer
custom operator
equine dentist
farm appraiser
farrier
feed mill operator
feed ration analyst/developer
fertilizer plant supervisor
field inspector
field sales representative

floral designer
grain elevator operator
insect and disease inspector
laboratory technician
landscape architect
ova transplant specialist
pest control technician
pet shop operator
poultry service technician
sheep shearer
stockyard supervisor
tree surgeon
zookeeper

Agriculture Mechanization/Engineering and Technical Support Services. This cluster includes all aspects of agriculture mechanization such as aspects of buildings, manufacture, design, safety, and power systems (pneumatic, hydraulic, internal combustion, and robotics, for examples), and systems essential to the other clusters, such as irrigation, ventilation, production, transportation, and the like.

agricultural construction engineer
agricultural electrician
agricultural equipment designer
agricultural plumber
agricultural safety engineer
agricultural welding specialist
diesel mechanic
equipment operator
hydraulic engineer
irrigation engineer
land surveyor
machinist
parts manager
research engineer
safety inspector
soil engineer
systems design analyst
systems designer

Agriculture Resources Management. This cluster includes such fields as forestry and paper science, wildlife management, outdoor recreation development and management, water resource management, and soil management. It also includes the impact of other agriculture clusters on natural resources.

animal behaviorist
animal ecologist
animal taxonomist
environmental conservation officer
environmentalist
fire warden
forest firefighter
forest ranger
game farm supervisor
game warden
ground water geologist
outdoor recreation developer
outdoor recreation manager
park ranger
range conservationist
resource manager
soil conservationist
trapper
water resources manager
wildlife manager

"If there is one lesson in history which is unmistakable it is that national strength lies very near the soil."

—Daniel Webster

Professional Employment in Agriculture. Workers in this area include but are not limited to educational professionals in agriculture, consultants, government and regulatory agency personnel, communications and journalism specialists, and other specialized professionals, such as meteorologists and researchers.

The mission of education in agriculture is to prepare people for employment . . .

agricultural consultant
agricultural educator
agricultural journalist
agricultural lawyer
avian veterinarian
bacteriologist
biochemist
bioengineer
biophysicist
botanist
dairy nutrition specialist
dendrologist
embryologist
entomologist
fiber technologist
food chemist
herpetologist
hydrologist
ichthyologist
international agricultural specialist
invertebrate zoologist
land bank manager/agricultural loan agent
limnologist
mammalogist
marine biologist
meteorological analyst
microbiologist
mycobiologist
nematologist
organic chemist
ornithologist
parasitologist
plant and animal cytologist
plant and animal geneticist
plant and animal nutritionist
plant and animal pathologist
plant and animal physiologist
plant and animal scientist
pomologist
poultry scientist
public relations manager
reproductive physiologist
rural sociologist
silviculturist
soil scientist
vertebrate zoologist
virologist
viticulturist
weights and measures official

The seven clusters offer a contemporary description of the areas in the employment sector that include agricultural occupations. Literally hundreds of specific job titles are subsumed under these clusters. The original agricultural employment cluster model utilized by the U.S. Department of Education was developed in the late 1960s and contained nine clusters. The current listing reduces duplication and defines a "miscellaneous" category included in the department's clusters.

The mission of education in agriculture is to prepare people for employment in this basic food and fiber industry. A curriculum for education in agriculture in Wisconsin should logically reflect these employment clusters, which have been determined by representatives of the state's agricultural industry.

Historical Development

In refining or expanding curriculums to explore as many of these clusters as possible, it is important to build upon the rich historical traditions of agriculture education in Wisconsin. In truth, the development of

current secondary programs in agricultural education is related to the development of postsecondary agricultural education in the late nineteenth century. Colleges or schools of agriculture were organized after the passage of the Morrill Act in 1862. Additional postsecondary efforts in agricultural education were initiated in Wisconsin with the Farm Short Course in 1886 and the Dairy School in 1892. A response to improve agricultural education in Wisconsin was proposed by L.D. Harvey, state superintendent of public instruction, in 1901. Harvey proposed to the governor and legislature that "to supplement the work of the rural schools in agricultural education, county agricultural schools be established . . . and that state aid be given to these schools. . . ."[2] The County Agriculture Schools were opened in 1902 and secondary agriculture education programs were established in Wisconsin at that time. A total of eight County Agriculture Schools were organized and operated in Wisconsin until legislation was passed in 1925 specifying that ". . . no new schools could be established on or after July 1, 1925."[3]

Agricultural education in Wisconsin high schools was first reported in 1910.

Agriculture education in Wisconsin high schools was first reported in 1910. State aid for agriculture, domestic economics, and manual arts was made available to qualified high schools by legislative action in 1911. The legislation resulted in ". . . rapid development in agricultural teaching in the high schools. . ."[4] by 1912-13.

L.M. Sasman reported on the development of teaching agriculture during the initial years of the program. He noted:

> In the beginning of agricultural teaching in the high schools, there were but few texts or reference books available, and those were written with but vague ideas of the needs of farm boys in secondary schools. Teachers had no knowledge of the teaching of vocational subjects and many of them used the methods by which they had been taught in college or methods similar to those employed by teachers of cultural subjects. As the instructors were hired only for nine months, there was no opportunity for any form of directed practice and the instruction was very largely theoretical. Farmers were quick to sense this weakness and were, in many cases, the strongest opponents of agricultural teaching. In order to overcome this difficulty, the State Department of Public Instruction, which until the passage of the Smith-Hughes Act had supervision of all secondary agricultural teaching, raised the requirements of departments and insisted that instructors in agriculture be hired for at least eleven months if state aid was desired. As a result of this action, teachers were given the opportunity to link the teaching of agriculture much more closely to the home practices of the pupils. This was really the beginning of vocational agricultural education in the high schools of Wisconsin.[5]

. . . teachers were given the opportunity to link the teaching of agriculture much more closely to the home practices of the pupils.

Established teaching methods used in agriculture education during these early years had an impact upon the curriculum that was developed and used by most teachers of agriculture. The initial programs of

secondary agriculture education apparently had common curriculum items, according to Sasman.

> Almost from the beginning of agricultural teaching in Wisconsin, the curriculum most generally accepted included four units of agriculture, although there were a number of different ideas as to how those units should be arranged. One unit of Farm Crops and one of Farm Animals were very generally agreed upon, but the other units were less definite. . . .[6]

. . . instruction must be given which would be of practical value to anyone . . .

Directed Practice Work

While the exact units to be taught in high school agricultural programs might have varied, one aspect of the program received universal agreement. Within a few years after 1910, "directed practice work" was emphasized throughout the state.

> Beginning with practically nothing in directed practice work in 1910, the development in the next few years was astounding. Farmers and farm boys throughout the state were brought to realize that if the teachings of the classroom were put into effect upon the home fields and in the barns of the farm boys, instruction must be given which would be of practical value to anyone intending to pursue a farming occupation.[7]

The development of the "directed practice work" within the high school agricultural programs had an impact upon the development and identity of the secondary agriculture education program in Wisconsin. This aspect of the program was highlighted by the Wisconsin Department of Public Instruction as the program policies were established following the passage of the Smith-Hughes Act (Vocational Education Act of 1917). Sasman quoted *Agriculture in the High School* by Goddard and James[8] when he reported:

> . . . it is now a definite requirement of the state department that a systematic and well organized plan of project work must be carried out with all students in the agricultural course during each year of the course, in order that state aid may be granted. . . .[9]

All student projects were required to have a well developed plan of work and provisions for completion of accurate reports and for frequent supervision.

The 1917 state directives listed a wide range of student projects that included topics such as field crops, animal projects, soil testing and analysis, horticulture, gardening, building construction, landscape design and planting, and engine maintenance and repair. All student projects were required to have a well-developed plan of work and provisions for completion of accurate reports and for frequent supervision. The development of student projects, begun under DPI leadership, expanded with the passage of time and has been determined to be an important function of the agriculture education program in Wisconsin high schools. The current version of the "directed practice work" is the "Supervised Occupational Experience Program (SOEP)."

Curricular Evolution

The curriculum of the Wisconsin secondary agriculture education programs has evolved over time. In the mid-60s, C.L. Greiber, director of vocational and adult education, documented the various phases of the curriculum changes in Wisconsin. His outline of the historical development of the agricultural curriculum has been updated and is presented in Chart 2 on the following page.

Chart 2 notes the vertical scope and sequence structure of the first agriculture education curriculum, which offered few opportunities for local schools to modify the state-directed curriculum. The second and third revisions offered expanded flexibility for high school teachers of agriculture to modify the suggested state curriculum. The fourth, fifth, and sixth revisions offered minimal state directives concerning curriculum structure and encouraged local planning and development for the secondary agriculture education programs.

Solid Foundation

The importance of the developmental impact upon the secondary agriculture education programs in Wisconsin has been reported by Dale C. Aebischer. He noted:

> The early years in the development of vocational agricultural education in Wisconsin . . .were a critical and highly significant period. The foundations developed by the leaders and teachers of that time not only launched an effective program of agricultural education, which has stood the test of time and has had continued growth, but have had a far reaching influence on education in general. The concepts of the problem approach applied to individual instruction, student occupational experience programs, use of the content of agriculture to assist youth in career exploration, use of community resources in teaching, use of local advisory resources in planning and projecting educational programs, and emphasis on leadership training as an essential part of education are among the contributions of that time which tend to reappear as innovations in various areas of present day education.[10]

. . . contributions of that time . . . tend to reappear as innovations in various areas of present day education.

He also addressed the impact of state and federal vocational education legislation on Wisconsin secondary vocational agricultural education programs. Aebischer reported:

> Much of what the 1963 act and the 1968 amendments made possible in a broad vocational program was already being practiced to some degree in vocational agriculture. The legislation permitted intensification of such activities and in some instances made legal certain instructional activities which anticipated needs ahead of the new acts and were already taking place. Pilot and experimental programs became possible to explore new

Chart 2

Agricultural Curriculum Historical Development, 1920-81*

Time	Instructional Approach	Instructional Emphasis
1920 to 1941	**Development Period** Organized on a *vertical* scope and sequence basis by years. First year—Crops; second year—Animal Husbandry; third year—Farm Mechanics; and fourth year—Agricultural Economics.	• Production (Food and Fiber)
1942	**Revision** (first) *Horizontal* scope and sequence. The instructional areas were divided into units which were distributed throughout the four-year program.	• Production (Food and Fiber)
1952	**Revision** (second) Continued the unit approach but included more detail in the outline format.	• Production (Food and Fiber) • Machinery Maintenance Attention
1960	**Revision** (third) Similar to 1952, but deleted some detail in unit outline formats and added new units.	• Production (Food and Fiber) • More Mechanics Emphasis • Marketing Attention
1965	**Revision** (fourth) Added new guidance approach which utilized the unit instruction and specialization emphasis for student interest and special needs.	• Production (Food and Fiber) • Marketing and Economic Analysis • Business Analysis (Management and Cost Factors) • Related Agricultural Occupations • Social Implications
1975	**Revision** (fifth) Continued unit instruction and specialization emphasis but expanded unit description to include: (1) performance objectives; (2) concepts to develop; (3) subject matter to teach; (4) motivation; (5) learning activities; and (6) materials needed.	• Production (Food and Fiber) • More Management Emphasis • More Technical Emphasis • Teaching Process Emphasis • Teaching Resources Identified
1981	**Revision** (sixth) Maintained unit structure, specialization emphasis, and format of the 1975 revision. Expanded topics, plus additional resources, were included in this revision.	• Production (Food and Fiber) • Business Management Emphasis • Technical Specialization Emphasis • Teaching Procedures Emphasis • Teaching Resources Emphasis • Agricultural Career Opportunity Attention

*Adopted from a chart by C.L. Greiber, "Historical Development, 1920-65"; updated by Richard A. Jensen, Professor of Agricultural Education, University of Wisconsin-River Falls, 1981.

approaches in the expanded agribusiness areas. The comprehensive vocational education programs in schools which have been stimulated by the 1963 and 1968 vocational acts contain many elements which have been part of vocational agriculture for many years.[11]

Federal vocational education legislation, passed in 1963, and subsequent amendments attempted to expand the vocational programs to meet increased employment opportunities for students. Floyd J. Doering, then a state agriculture consultant, observed the effects of program expansion and the pilot program research that were reported in an "unprecedented number of publications produced by the agriculture division of the Bureau for Career and Manpower Development."[12] He observed that 27 separate publications were developed that addressed a variety of agricultural topics. As Doering addressed the past and future of secondary agriculture education programs, he reported:

. . . for more than fifty years the program of vocational agriculture in this state has been strong, relevant and effective. It has successfully attracted an increasing number of students while developing the substantial support of parents and other people in the community. Changing technologies, social viewpoints, educational procedures and economic circumstances all have had an impact on the program. It is important that vocational agriculture change and keep pace with the times. However, we must be careful not to throw out the baby with the bath water—the important basic aspects of the program must remain strong if vocational agriculture is to continue to be successful in vocational education.

. . . the important basic aspects of the program must remain strong . . .

- Problem method of teaching—teaching of basic principles, knowledge and abilities.
- The basic concept of the importance of the individual student. The home visitation of the student and parent.
- The close supervision of the student's occupational experience program.
- The teaching of the basic principles, including marketing, money management, record keeping and the like.
- The continued emphasis on developing human relationships and leadership qualities.

Emphasis for the future must be placed in the following areas:

- Expansion and extension of specialized courses in the field of agriculture.
- Emphasis on the world of work in grades 1-6 and career orientation in grades 7 and 8.
- We must greatly expand our cooperative education programs for senior students.
- Need to expand our inservice programs for instructors, especially in the specialized areas. Place more emphasis on the instructor's work experience.

- Extension of program offerings by specialized teachers beyond the school district boundaries.
- Increased, and more effective, use must be made of local advisory committees.
- Better articulation between the post high and high school programs.
- More and better cooperation between employment agencies and the local school.
- A broader program for Future Farmers of America members.
- A concerted effort must be made to get more students interested in becoming teachers of vocational agriculture.[13]

The contemporary and future agriculture education programs in Wisconsin high schools are the result of past experiences, current activities and policies, and the perceived agriculture education needs of current and future students. As curriculum development is considered, the proven elements of the program must be retained.

As curriculum development is considered, the proven elements of the program must be retained.

End Notes

[1]*Think About It* (Alexandria, VA: National FFA Center, 1986), p. 2.

[2]L.M. Sasman, "The Development of Vocational Agricultural Education in Wisconsin," *Agricultural Series*, Bulletin No. 4 (Madison, WI: State Board of Vocational Education, 1926), p. 31.

[3]Ibid., p. 33.

[4]Ibid., p. 45.

[5]Ibid., p. 49.

[6]Ibid., p. 50.

[7]Ibid., p. 51.

[8]Henry Goddard and John James, *Agriculture in the High School* (Madison, WI: State of Wisconsin, 1917).

[9]Sasman, op. cit., p. 52.

[10]Dale C. Aebischer, "The Development of Vocational Agricultural Education in Wisconsin Supplement, 1960-1972," *Supplement to Bulletin No. 4* (Madison, WI: Department of Public Instruction, 1972), p. 1.

[11]Ibid., p. 6.

[12]Floyd J. Doering, *A History of Vocational Agriculture in Wisconsin, 1900-1976* (Madison, WI: Department of Public Instruction, 1976), p. 88.

[13]Ibid., pp. 89-90.

Curriculum Development

2

General Process
Set Framework for Change
Determine Current Status
Determine Content
Implement the Program
Use Ongoing Evaluation

*General Process**

Recognize Need

. . . once the need for curricular revision has been recognized, it can be accomplished much more readily if the district has a sound planning process in place.

Curriculum changes in any discipline may be required for a number of reasons: (1) the need to restructure a traditional subject area in the light of recent research findings or the emerging needs of students; (2) local, state, or federal statutory changes, such as the passage of graduation requirements or participation in a competency-based testing program; (3) the impact of educational technology on local curriculum; (4) the demands for excellence affecting local curriculum; or (5) the need to incorporate equity concepts and multicultural, sex-fair course objectives into a curriculum. Sometimes such planned changes involve entire programs and require several years of work. At other times, efforts are short term, focused on narrow components of programs. Regardless of the magnitude of the proposed changes, once the need for curricular revision has been recognized, it can be accomplished much more readily if the district has a sound planning process in place.

Establish Organizational Structure

Effective curriculum change requires a structure for establishing authority, acquiring materials and equipment, securing services, and making decisions.

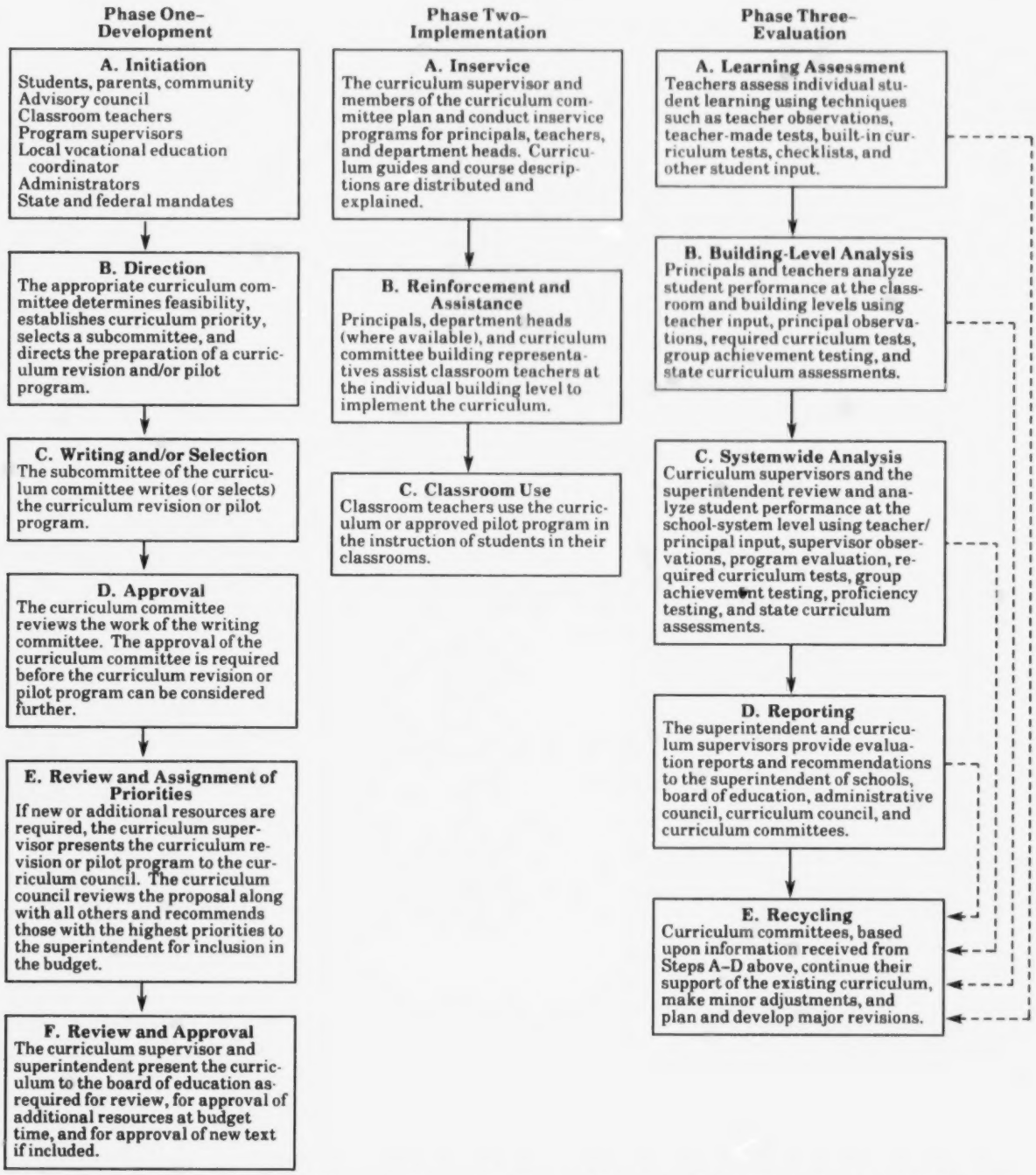
Effective curriculum change requires a structure for establishing authority, acquiring materials and equipment, securing services, and making decisions. If this mechanism does not exist, it will have to be created. One leader should be responsible for initiating and coordinating districtwide curriculum development, implementation, and evaluation. School size and structure will determine whether this person is a curriculum coordinator, principal, department chairperson, or classroom teacher. All administrators and teachers, however, should recognize the curriculum leader's authority and agree to cooperate fully.

Curriculum development and implementation require this network of administrative support if they are to be successful. Chart 3 shows a sample organizational structure for orderly development, implementation, and evaluation of curriculum change. It specifies the authority or who is responsible for each phase of the process. Since the model was first introduced in Wisconsin in 1985, it has the advantage of being familiar to many district administrators and curriculum supervisors.

*This section is adapted from *A Guide to Curriculum Planning* (Madison, WI: Department of Public Instruction, 1985).

Chart 3

Sample Organizational Structure
Curriculum Development and Change


Phase One–Development
A. Initiation
Students, parents, community
Advisory council
Classroom teachers
Program supervisors
Local vocational education coordinator
Administrators
State and federal mandates
B. Direction
The appropriate curriculum committee determines feasibility, establishes curriculum priority, selects a subcommittee, and directs the preparation of a curriculum revision and/or pilot program.
C. Writing and/or Selection
The subcommittee of the curriculum committee writes (or selects) the curriculum revision or pilot program.
D. Approval
The curriculum committee reviews the work of the writing committee. The approval of the curriculum committee is required before the curriculum revision or pilot program can be considered further.
E. Review and Assignment of Priorities
If new or additional resources are required, the curriculum supervisor presents the curriculum revision or pilot program to the curriculum council. The curriculum council reviews the proposal along with all others and recommends those with the highest priorities to the superintendent for inclusion in the budget.
F. Review and Approval
The curriculum supervisor and superintendent present the curriculum to the board of education as required for review, for approval of additional resources at budget time, and for approval of new text if included.
Phase Two–Implementation
A. Inservice
The curriculum supervisor and members of the curriculum committee plan and conduct inservice programs for principals, teachers, and department heads. Curriculum guides and course descriptions are distributed and explained.
B. Reinforcement and Assistance
Principals, department heads (where available), and curriculum committee building representatives assist classroom teachers at the individual building level to implement the curriculum.
C. Classroom Use
Classroom teachers use the curriculum or approved pilot program in the instruction of students in their classrooms.
Phase Three–Evaluation
A. Learning Assessment
Teachers assess individual student learning using techniques such as teacher observations, teacher-made tests, built-in curriculum tests, checklists, and other student input.
B. Building-Level Analysis
Principals and teachers analyze student performance at the classroom and building levels using teacher input, principal observations, required curriculum tests, group achievement testing, and state curriculum assessments.
C. Systemwide Analysis
Curriculum supervisors and the superintendent review and analyze student performance at the school-system level using teacher/principal input, supervisor observations, program evaluation, required curriculum tests, group achievement testing, proficiency testing, and state curriculum assessments.
D. Reporting
The superintendent and curriculum supervisors provide evaluation reports and recommendations to the superintendent of schools, board of education, administrative council, curriculum council, and curriculum committees.
E. Recycling
Curriculum committees, based upon information received from Steps A–D above, continue their support of the existing curriculum, make minor adjustments, and plan and develop major revisions.

Adapted from *A Guide to Curriculum Development: Purposes, Practices, and Procedures* (State of Connecticut Board of Education, 1981).

Secure Support

The individual who initiates change faces the challenge of securing widespread cooperation and support.

The attitudes, values, and priorities of administrators and teachers control how much individual support and effort will be directed toward curriculum change. Change must be accepted by everyone involved to be completely successful. This need for acceptance extends from the classroom teacher to the person in charge of curriculum coordination; from the principal to the district administrator. It also reaches to the school board, the community, and the students.

The individual who initiates change faces the challenge of securing widespread cooperation and support. Information sessions, informal discussions, workshops, and seminars can promote interaction and set the stage for change. Equivalency clock hours, extended contracts and board credit, and release time are some of the rewards that can be given to those involved in the process. Whatever the techniques and rewards used, people who develop and implement curriculum must have a sense of belonging and ownership; they must feel the worth of their individual contributions to the project.

Assign Tasks

Leadership

Designating one individual to be responsible for curriculum planning and coordination is a first requirement. Ideally, this person should be experienced in curriculum development and have organizational skills, leadership qualities, and the acceptance of the staff.

. . . curriculum planning is a complex task that should not be vested entirely in one individual, regardless of personal qualifications.

Still, curriculum planning is a complex task that should not be vested entirely in one individual, regardless of personal qualifications. A plan must be established to facilitate and insure shared decision making. This plan usually includes appointing a curriculum council, with the designated leader acting as chair and serving as a liaison to the various interest groups within the district.

Curriculum Council

A district's curriculum council coordinates the total curriculum development process. It should be representative of groups affected by curriculum change and may, depending on size and district organization, include the curriculum leader, chairpersons for the different subject areas, the coordinator for library/media programs, an administrator from each level, community members, and representatives from the student body. The curriculum council has a responsibility to promote the infusion of content from each subject area into related subjects and the integration of basic skills, such as reading, writing, speaking, and listening, into all subject areas. Such a council encourages curriculum development that furthers departmental interests and cooperation so that relationships between subject areas and common goals are exploited to improve instructional

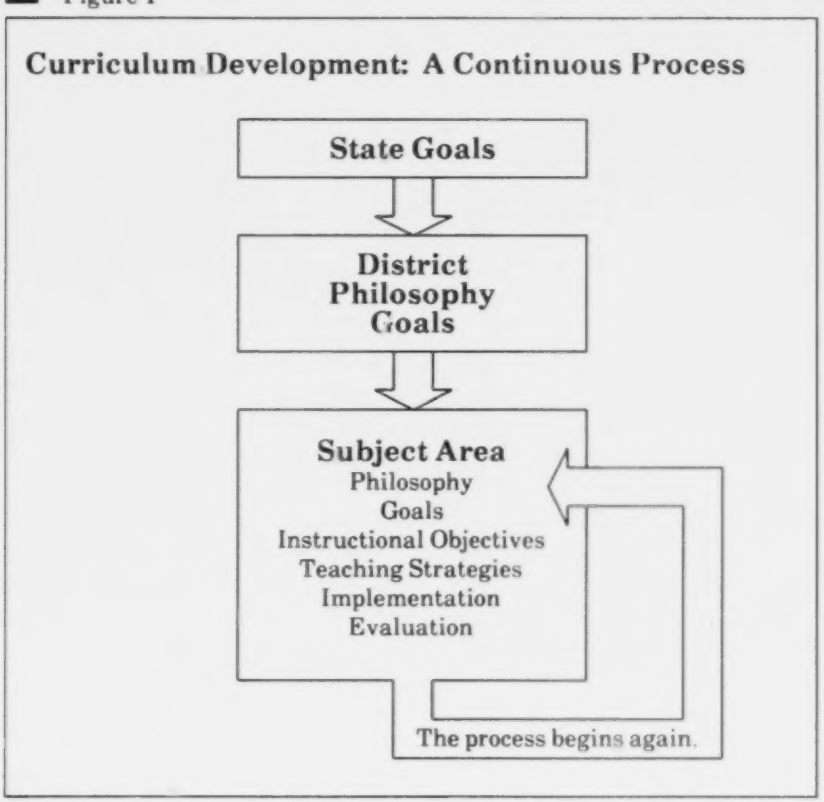
programs. The specific task of this council is to set district curriculum priorities, which frequently involves the following six steps.

Establishing an Educational Philosophy. Before curriculum development begins, the curriculum council should review the district educational philosophy to determine its compatibility with current local values and beliefs and state educational goals. Such a philosophy states the district's general beliefs, concepts, attitudes, and values regarding education and provides a frame of reference from which to review or develop a curriculum. If a statement of philosophy is not available, the curriculum council should formulate one to guide the development process.

Stating Curricular Goals. Goals are statements of general curricular purpose or intent for all disciplines and grade levels. They derive from the district's educational philosophy and reflect the general direction district curriculum development will take. Broad district goals should be consistent with statewide goals. These general goals provide the framework for developing more specific goals and objectives in the various subject areas. The relationship between state goals, local goals, and subject-area goals is illustrated in Figure 1.

. . . review the district educational philosophy to determine its compatibility with current local values and beliefs and state educational goals.

Figure 1



Determining Priorities and Planning a Master Schedule. Curriculum development is a continuous process in which the emphasis shifts among the subject areas in the total school program. The curriculum council should establish a time line indicating the sequence and time frame for developing each subject-area curriculum. This schedule, along with a description of strategies for accomplishing each phase—reviewing, writing/revising, piloting, implementing, and evaluating—constitutes the master plan. The final master plan, submitted to the superintendent and the board of education for approval, provides a vehicle for long-range curriculum development and encourages comprehensive planning.

Identifying Resources. The curriculum development process requires human, financial, and material resources. The availability of these should be analyzed to determine what additional resources, if any, will be needed to develop and implement curriculum. Competent district personnel should be identified and the curriculum council also should seek support from local teacher and administrative groups. Additional human resources are available through the Wisconsin Department of Public Instruction, cooperative educational service agencies (CESAs), and Wisconsin colleges and universities. These agencies can assist with curriculum content, race and sex equity issues, technology, career education, and other topics. Persons from the community also should be encouraged to participate.

Financial resources affect the extent of curriculum development. Therefore, the curriculum council must seek a commitment in the form of a budget allocation, and the council should investigate outside funding sources such as public or private agencies and the state or federal government. The master plan should outline the budgetary requirements and time demands for each step in the curriculum development process for each subject area.

. . . build broad-based acceptance of new curriculums through widespread dissemination of information.

Finally, the curriculum council should review materials available and determine additional materials needed. Among such resources are professional books and journals, student materials, published guides from other schools and states, and research publications. Information searches can be conducted using various data bases and by contacting other schools and the Department of Public Instruction.

Facilitating Communication. The curriculum council is responsible for keeping administrators, teachers, students, parents, and the community informed of its activities. Once a curriculum is ready for implementation, the council can hold a series of informational meetings and use mass media and other avenues of communication to gain additional staff, student, and community support. It is important to build broad-based acceptance of new curriculums through widespread dissemination of information.

Monitoring the Development Process. As curriculum is being developed, the curriculum council should monitor the progress of the project. Reports from the various subject-area committees should be obtained and periodic reports should be submitted to the superintendent.

Using these principles of the general process of curriculum development and tailoring them to fit the specific requirements of the discipline provide a smooth mechanism for curricular change in agriculture education. The specific steps include establishing a framework for change, examining the present program, determining content, implementing the program, and evaluating the program.

Set Framework for Change

Establishing the Committee

An agriculture education curriculum committee must be appointed and it must have effective leadership, usually provided by the agriculture education instructor. The committee chairperson should understand the current nature of agriculture education, have a broad knowledge of the subject, know curriculum development, and have the respect of both teaching and administrative staff.

An agriculture education curriculum committee must be appointed and it must have effective leadership, usually provided by the agriculture education instructor.

The committee chairperson must be given the authority to make the decisions needed to continue the committee's work. This authority should be clearly defined by the school system's administrator and/or school board in a letter of appointment. The letter should also define the charge to the committee. The curriculum development committee should

- be broadly representative of the district, including, as available and locally appropriate, members of the agriculture advisory committee, representatives of agribusiness and industry, classroom teachers (such as from the sciences and mathematics), administrators, students, parents and community professionals, specialists in race and sex equity issues, reading and special education teachers, and library media specialists; and
- be representative of each grade level or of several grade-level groupings, for example, K-3, 4-6, 7-9, and 10-12.

In districts that have a well-established agriculture education advisory council with broad community representation, it may be appropriate to have the advisory council act as a curriculum committee. Having these members involved in the development process promotes "ownership" and familiarity with the new curriculum.

Identifying Available Resources

"Coming together is a beginning, keeping together is progress, working together is success."

—Henry Ford

The agriculture education curriculum committee should be aware of the resources at its disposal and should identify any additional resources needed. Among resources to consider are

- the amount of time committee members will have to devote to curriculum development;
- the materials available, including database searches, journals, exemplary curriculums, sample courses of study, and other models;

- available support services (typing, duplicating);
- consultant services (During curriculum development, the assistance of others with recognized expertise is often useful. Needed assistance may be secured from the Department of Public Instruction; agriculture or curriculum specialists from universities, colleges, or other school districts; or local citizens. Assistance is also available from the professional associations and resource organizations listed in Section 5 of this guide.); and
- the funding available to carry out the committee's work. It is desirable for the committee to complete a budget once the amount of available funding is known and a task list and time line have been completed. If funding appears insufficient to complete the committee's work, then an amended budget should be submitted to the board of education requesting additional money.

Developing Task List and Time Line

The committee should set approximate target dates for completion of each task.

Early in the process, the committee should develop a list of the tasks which must be carried out in order to produce the curriculum guide. These tasks should be listed in chronological order within the time frame established for developing the guide. The committee should set approximate target dates for completion of each task. Where appropriate, individuals with primary responsibility for completing each task should be identified.

Providing Committee Inservice

Although many members of the committee probably agree to serve because they are highly interested and have some degree of expertise in one area or another of agriculture education, there may be some who are not as well informed as others. A variety of inservice activities may be needed to explore contemporary trends in the field and help committee members develop a common frame of reference. The committee should review and discuss agriculture curriculum content, current literature pertaining to agriculture education, successful curriculum models, and sources of consultant help.

Determine Current Status

Examine the Present Program

Before writing the curriculum, the committee should determine the current status of agricultural education instruction in the district. This will help identify discrepancies between present practice and desired outcomes.

The committee must decide what information to collect, how that information will be collected, and how it will be analyzed. At the very least, the information collected should include

- content currently being taught at all grade levels, K-12;
- approaches being used in teaching;
- instructional resources being utilized;
- data on student achievement;
- curricular needs as perceived by students, teachers, and administrators;
- school district research (survey, study) reports on the perceptions and expectations of community members; and
- information about staff preservice preparation and continuing professional development.

The results of this examination should help the committee identify strengths and weaknesses in the existing curriculum. The results can also serve as a base for building a new program or revising an existing one and for setting content and instructional priorities. This section contains a detailed statement of standards and guidelines developed by the profession for programs of agriculture education in Wisconsin. These can serve as the basis of a thorough examination of the present program.

Consider Sex Equity and Special Needs

As it develops a revised curriculum, the agriculture education curriculum committee must familiarize itself with the unique needs of various special student populations and strive to meet those needs in the new curriculum. A variety of federal and state laws and regulations require that a full range of vocational education programs be accessible to all handicapped and disadvantaged students and that sex equity be addressed by increasing educational opportunities and eliminating discrimination and sex bias.

. . . laws and regulations require that a full range of vocational education programs be accessible to all handicapped and disadvantaged students and that sex equity be addressed . . .

The ideal time for a careful consideration of these equity and special needs issues is when the curriculum is being considered and revised. Consultation with professionals familiar with statutory and regulatory requirements should be sought early in the revision process. These topics are so important that they are given expanded, detailed treatment in Appendixes A and B.

Determine Content

Adopt a Philosophy

The philosophy governing curriculum development and instruction in agriculture education should reflect local educational philosophy. It should take into account current professional developments in agriculture,

established values for the subject, and the values of the local community. The statement of philosophy should also provide for students' future needs.

Establish Goals and Objectives

Goals should be consistent with statewide, as well as local, educational goals.

Goals are broad, general statements of direction, highlighting major elements of the agriculture education philosophy. Goals should be consistent with statewide, as well as local, educational goals. Statewide, six major program goals for education in agriculture programs have been developed. Each one includes contributory goals that describe the scope of the major goal. Local goals should be reflective of these statewide aims. The state goals are

- to develop an understanding of and appreciation for career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations;
- to develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education;
- to develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture;
- to develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture;
- to develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social, and civic responsibilities; and
- to develop those human relations abilities that are essential in agricultural occupations.

The following explanation of each state goal is designed to clarify the major program goals and indicate that their attainment depends upon many contributory goals.

Modern agriculture is broad and complex, involving hundreds of professional and technical occupations that require extensive knowledge and highly developed skills . . .

To develop an understanding of and appreciation for career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations. Modern agriculture is broad and complex, involving hundreds of professional and technical occupations that require extensive knowledge and highly developed skills, as well as some that require only relatively simple manipulative abilities. Current trends indicate that agriculture will become even more complex and specialized in the future. Thus, individuals aspiring to enter and/or progress in agricultural occupations should acquire knowledge concerning the types of jobs available and their characteristics. This would include the number of annual employment opportunities, abilities required, beginning salaries, advancement opportunities, and promise of satisfaction.

In making a tentative occupational choice and beginning to prepare for it, the prospective worker must assess personal characteristics and interests in relation to the requirements of the occupation and the employment opportunities it affords. Foremost among contributory goals are the abilities to

- understand and appreciate the importance of agriculture to the nation's economy and its impact upon the daily lives of all citizens;
- determine the types and numbers of occupational opportunities in agriculture;
- evaluate information concerning agricultural occupations;
- study pertinent occupational information in relation to personal characteristics, attitudes, and interests;
- obtain exploratory work experience in selected occupations under proper supervision; and
- appreciate the need for pursuing a program of continuing education to keep abreast of and advance in the occupation.

To develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education. One objective of students in vocational and technical education is successful entry and advancement in an occupation. For many occupations, vocational education in full-time high school classes, followed by part-time enrollment in post-high school classes, is sufficient for satisfactory placement and advancement. An increasing number of agricultural occupations require technical or professional education. For students who desire placement at these levels, courses in high school designed to develop vocational competence, supported by other selected subjects, make up a desirable pretechnical or preprofessional program of instruction. Such preparation develops attitudes and abilities that enable the student to complete technical and professional programs successfully. Recognizing the dynamic nature of agricultural occupations, students must understand that continuous education will be a normal pattern for agricultural workers at all levels.

Students should be aware of occupational opportunities and requirements throughout their preparation for a chosen field. Instructors are primarily responsible for developing the student's needed abilities. In fulfilling these responsibilities, they should enlist the aid of other competent persons. Foremost among contributory goals are the abilities to

- utilize the services of appropriate agencies and organizations in locating and securing satisfactory employment;
- analyze opportunities for self-employment;
- analyze job opportunities and requirements, and assess personal abilities and interests in terms of these requirements;
- apply for employment and participate in employment interviews;
- plan and pursue a program of continuing education appropriate to the requirements of a selected vocation; and
- make satisfactory progress and advancement in an occupation.

To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture. The efficient production of agricultural commodities requires many goods and services usually provided by specialized businesses. The productivity of the agricultural economy will be influenced by the competencies of the workers in these businesses.

. . . appropriate educational programs must be designed not only for those who produce agricultural commodities, but also for those who are engaged, or will engage, in other agricultural occupations . . .

Therefore, appropriate educational programs must be designed not only for those who produce agricultural commodities, but also for those who are engaged, or will engage, in other agricultural occupations—the processing, distribution, and service segments of agriculture. Experience and training in production agriculture are either essential or highly advantageous for workers in all agricultural occupations. Foremost among contributory goals are the abilities to

- understand and apply the principles of the seven agricultural employment clusters as they relate to agricultural occupations;
- perform the day-to-day and supervisory activities necessary to enter and progress in an agricultural occupation by
  - —understanding the marketing and processing of agricultural products, and the provision of related services;
  - —understanding the principles of selling supplies and providing services to meet specific needs of production agriculture;
  - —understanding how agricultural businesses are operated and financed, and how these businesses render service to production agriculture;
  - —understanding what is expected of an employee;
  - —understanding employer policies and procedures;
  - —maintaining effective customer relations;
  - —respecting and wisely using the property of the employer;
  - —preparing, maintaining, interpreting, and using records and reports; and
  - —understanding, interpreting, and following memorandums, manuals, and written policies and regulations.

To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture. The attainment of this major goal requires competencies in one or more of the seven major agricultural employment clusters identified in Section 1 of this guide. There are several different occupational levels at which individuals are engaged in production agriculture (owner/operator, manager, tenant, technician, laborer). Since the knowledge and skills needed at different levels vary, educational programs designed to prepare and upgrade individual workers must also vary in length and level of instruction. Fulfilling this goal requires coordination of the course of study and supervised occupational experience.

. . . educational programs designed to prepare and upgrade individual workers must also vary in length and level of instruction.

Specific teaching objectives should be established on the basis of the abilities required of an individual to make satisfactory management decisions and/or to perform certain operations in agriculture. These may be determined by making an analysis of the day-to-day and managerial functions performed by successful farmers or operators of comparable agricultural businesses.

The following contributory goals are applicable to farmers and ranchers who produce food and fiber and to operators of greenhouses who produce food and ornamental plants. They also apply to individuals who are involved in the business of producing nursery stock, of landscaping and

maintaining grounds, or of growing trees for commercial purposes. Foremost among contributory goals are the abilities to

- begin and advance in production agriculture;
- manage an agricultural business effectively by
  - — producing agricultural products efficiently;
  - — marketing agricultural products advantageously;
  - — financing an agricultural business successfully;
  - — providing for efficient agricultural buildings and mechanization;
  - — making decisions based upon the analysis of accurate and proper records;
  - — conserving soil and other natural resources;
  - — applying effective employee/employer relationships;
  - — making the most efficient use of physical and human resources in conducting the agricultural business, which may also involve supplemental or alternative sources of income; and
- maintain a favorable home environment.

To develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social, and civic responsibilities. In a democracy, every occupational area functions in a complex social setting. There is a need for developing constructive, effective leadership abilities in all persons. Modern agriculture demands individuals who can provide leadership in developing programs and policies that will create and maintain an optimum climate for agriculture consistent with the general welfare.

Modern agriculture demands individuals who can provide leadership in developing programs and policies that will create and maintain an optimum climate for agriculture . . .

Participation in intracurricular activities of the agriculture education student organization develops individual leadership and stimulates students to set and achieve worthwhile vocational goals. A national organization with state and local units provides a practical laboratory for developing democratic leadership, cooperation, and good citizenship. Foremost among contributory goals are the abilities to

- associate with and become a functioning member of an organization;
- identify and participate in desirable activities for developing and improving agricultural leadership;
- initiate activities that improve agricultural and civic activities;
- cooperate for the common good in agricultural and civic activities;
- develop and maintain desirable relationships between rural and urban groups; and
- participate in the development of local, state, national, and international policies and programs affecting agriculture.

To develop those human relations abilities that are essential in agricultural occupations. Agriculture education is concerned with the optimum development of each individual. It is not limited to the development of specific and narrow occupational competencies. Therefore, it shares with other areas of education the responsibility for the development of essential human relations abilities. Occupational success is influenced by the interpersonal relationships between the worker, co-workers, employers, and society in general. In many instances the successful

application of specific occupational competencies depends on effective human relations. Foremost among contributory goals are the abilities to

- appreciate the dignity of work and the need for individuals to make maximum contributions toward their occupation, and to the advancement of the family, the community, and the nation;
- establish and maintain effective and ethical working relationships with associates;
- communicate effectively;
- appreciate and follow desirable behavioral standards; and
- develop acceptable personal work habits.

Objectives are much more specific and derive from the broad goals of agriculture education. They refer to specific desired outcomes of the instructional program. Two types of instructional objectives can be utilized:

- teaching objectives, which help teachers organize instructional units; and
- learning objectives, which identify specific subject-matter content to be learned and applied. These are referred to as "competencies" in the instructional units given in Section 3.

The goals and objectives should identify instructional priorities and time lines and set up a logical order for instruction and learning. In Section 3, the sample instructional units have clearly defined, very specific objectives tailored for the particular unit content, for example.

Develop Units of Instruction

. . . designing a realistic classroom implementation plan is critical.

A teaching format should be designed to include all basic content for the agriculture education curriculum. It is often helpful to develop a schematic form that teachers can use in developing individual units of instruction. Its purpose is to ensure that all necessary components of a complete unit of instruction have been considered by the developers. In the next section, specific units are presented as sample content suggestions. They all follow the same conceptual format. That format can be adopted as is, or it can be modified based on local needs and desires.

Implement the Program

Once curriculum components have been developed, designing a realistic classroom implementation plan is critical. The logical first step in this process is trying out the new curriculum. This tryout or pilot phase may involve simply the use of activities and materials in classrooms for a few weeks during the development period. Or, resources permitting, the district may pilot total curriculum for a full year in one or more classrooms per grade level or course. Such a tryout period, whether limited or extensive, enables the curriculum committee to gather important information

about the success of the effort before making a total commitment to or significant changes in the curriculum. Information gained from students and teachers during pilot testing usually suggests modifications in the proposed curriculum. Section 3 contains sample instructional units that have been field tested in this manner. A sample of the questionnaire used to test the units appears in Appendix C.

Information gained from both students and teachers during pilot testing usually suggests modifications in the proposed curriculum.

Once adjustments have been made, the district can make a long-range commitment to districtwide diffusion and implementation of the curriculum. The curriculum committee and administration must address several critical issues prior to complete implementation, however. Among these are staff development needs, staff responsibilities, monitoring of the implementation process, and continuous modification of the instructional program. These issues are discussed below.

Identify Staff Development Needs

Once staff members who are to implement the new curriculum have been identified and their responsibilities clearly defined, the curriculum committee must determine staff development needs. Questions such as the following should be answered.

- How does the new curriculum differ from the current curriculum?
- How will new learning experiences and teaching strategies be presented to teachers?
- How will the necessary background information for teaching the content be provided to teachers?
- How will teachers be prepared to use new and different materials?
- How will teachers learn to use new methods of evaluation?
- How will teachers' ownership of the curriculum be nurtured?

A specific plan for professional staff development should be designed by the curriculum committee and approved by appropriate parties within the district. This plan should be based upon identified staff needs and other considerations, such as

- time commitment,
- budget,
- local teacher contract,
- leadership,
- participant selection, and
- resources.

A specific plan for professional staff development should be designed . . .

Identify Staff Responsibilities

Successful implementation of the agriculture education curriculum depends upon having staff test program components. These staff members must clearly understand their roles in the eventual implementation of the entire curriculum.

The curriculum committee and administration should maintain ongoing communication and coordination among staff involved. This will be easier to accomplish if the curriculum plan clearly states rationale, philosophy, goals, objectives, content, scope and sequence, evaluation methods,

and expected student outcomes for the total program so these can be easily understood by all. It is also important that staff members involved in the program develop a sense of ownership and commitment to the successful implementation of the curriculum. Fostering this requires the active involvement of staff in all stages of development and implementation.

It is also important that staff members involved in the program develop a sense of ownership and commitment to the successful implementation of the curriculum.

Monitor Implementation

As the curriculum is implemented throughout the district, the curriculum committee should set up some means of gathering observations from teachers, students, and administrators. Formal monitoring during implementation will provide evidence that the curriculum is actually being implemented as designed. It is advisable to assign a building principal or teacher specific responsibility for serving as instructional leader of the monitoring process. This person can inform the curriculum committee about successes, failures, and changes necessary to keep the curriculum development and implementation process flowing smoothly.

Modify the Program

A final step in long-range curriculum implementation is incorporating improvements suggested by the monitoring process. This ensures continuing review and revision of the instructional program and should be reinforced by appropriate staff development effort.

Use Ongoing Evaluation

Curriculum evaluation is the process of delineating and collecting information that can be used in judging learner progress and choosing program alternatives. The evaluation process begins with the initial planning of the agriculture education curriculum committee and continues throughout development and implementation of the instructional program.

. . . a careful examination of the existing program, using the state program standards and guidelines. . . has been recommended.

- In the curriculum planning stage, a careful examination of the existing program, using the state program standards and guidelines that follow, has been recommended. Such a study serves both as an evaluation of the present program and as a needs assessment for program change and development. The standards and guidelines for quality programs in agriculture education have been developed by the profession. They are designed to serve as a model with which all existing agriculture education programs and activities can be evaluated. They are also intended to serve as a guide for new or expanding programs.

- During the development stage, evaluation is a constant process by which the curriculum framework, scope and sequence, content, and learning activities are weighed against accepted educational philosophy and goals.
- During the tryout stage, evaluation consists of continuous monitoring of the process. This assures that the curriculum is being used as it was intended; the need for program modifications becomes clear and changes can be made easily at this stage.
- Evaluation at regularly scheduled intervals after implementation has begun provides data that confirm either success or the need for further revision of the program.
- In addition, the district can do an overall review of the availability of resources, both in the classroom and out, and evaluate teaching techniques, classroom climate, and other factors. Such feedback brings out causes of and possible remedies for educational problems.

. . . the district can do an overall review of the availability of resources, both in the classroom and out, and evaluate teaching techniques, classroom climate, and other factors.

Important steps in the evaluation of a curriculum plan and instructional program include

- agreeing on an evaluation plan;
- selecting appropriate evaluation instruments;
- establishing an evaluation schedule;
- implementing the evaluation plan;
- analyzing the results; and
- planning program modifications.

Philosophy, goals, and objectives are established in the first stages of curriculum development. When this early groundwork is done well, both formative and summative evaluation can proceed with the assurance that there are legitimate and defensible criteria for weighing results.

If both program objectives and student objectives have been attained, no unusual curriculum revision may be indicated. However, curriculum development never stops completely. Even the best of curriculums can profit from continuous examination. New knowledge, improved techniques, and changing philosophies and local priorities make curriculum development a never-ending challenge.

"If American education would study learning and the problems of learning like American agriculture studies farming and the problems of farming . . . we would solve the so-called 'rising tide of mediocrity.'"
—Terrel Bell

Standards for Agriculture Education Programs

The following are standards (requirements) for an agriculture education program in Wisconsin secondary schools.

Qualifications of Instructors

- Instructors shall have completed at least a four-year college course in agriculture with a Bachelor of Science or Bachelor of Education degree in an institution approved for the training of agriculture education instructors. The college instruction shall include courses in education and agriculture education that give training and experience in the principles and methods of agriculture education instruction.
- Persons employed as regular instructors in agriculture education shall be thoroughly acquainted with the practices and problems of agriculture.

Instructors will be required to have at least 2,000 hours of work experience in the agricultural field.

- A course or its equivalent in organization and administration of cooperative education programs will be required for all cooperative education programs.
- The summer conference is recognized as one of the most effective means of professional improvement and inservice. The conference should be regularly attended by all instructors.

The summer conference is recognized as one of the most effective means of professional improvement and inservice.

Employment of Instructor

- Instructors are to be employed on a 12-month contract (minimum of 40 working days on extended contract, exclusive of vacation time). When enrollment drops below 30 students, the school district may consult the DPI for approval of a shorter extended contract.
- The salary of the instructor will be determined by the local board. It must be exclusive of travel and be based upon the importance of the extended contract.

Program Requirements

- Programs shall meet the standards specified by the Bureau of Vocational Education to receive federal reimbursement.
- All programs must be served by an advisory committee.
- Individual students enrolled in the program shall have a supervised occupational experience program.
- An FFA chapter is an integral part of the agriculture education program. All programs shall have an FFA chapter. Programs not meeting standards will lose their eligibility to have an FFA chapter, and there will be no affiliation with the state and national FFA organizations.

Individual students enrolled in the program shall have a supervised occupational experience program.

- In the event that schools do not receive reimbursement under the federal vocational act, FFA programs and participation in all agriculture education activities may be continued upon receipt of a signed form from the school administrator or designee.
- The school shall complete such forms as required by the DPI. Failure to provide required reports will result in forfeiture of funds for the program.
- The agriculture education program shall be evaluated at regular intervals by the instructor, local administration, state staff or representative, and other designees.
- Public Law 740 makes agriculture education/FFA a single instruction program. As an intracurricular program, students involved in leadership and personal development are receiving classroom instruction in these activities.
- Equal access is to be assured for all students regardless of race, color, sex, age, religion, handicap, or national origin.
- Classes offered will relate to one or more of the following career clusters: science/production management; processing/food and fiber; marketing/distribution and retail services; supplies and services; mechanization/

engineering and technical support services; resources management; and professional employment in agriculture.

Guidelines for Agriculture Education Programs

The following are guidelines (recommendations) for an exemplary agriculture education program in Wisconsin public schools.

Instructional Program

- The department's annual and five-year program plans, including goals, objectives, and activities, are on file in the local department and with the local administration.
- A written statement of philosophy for agriculture education is on file and is in harmony with the philosophy statement for the total school.
- The instructional program is reviewed and modified in light of local, state, and federal labor data.
- Validated competencies, needed by students for entry and advancement in employment, are utilized in developing objectives for the instructional program.
- The instructional program contains the necessary balance of class time, laboratory work, field trips, and occupational experience to adequately prepare students for employment or advanced educational programs.
- Students enrolled in agriculture education are also enrolled in other appropriate courses including science, mathematics, social studies, and oral and written communications.
- The instructional program is articulated with other local secondary, postsecondary, and four-year programs of education in agriculture.
- Planned visits are made to prospective employers by the agriculture education instructor or school placement officer to determine current labor needs.
- Provisions are made to accommodate students with physical handicaps or other special education needs.
- Community resources, facilities, and industries are identified and utilized to enhance the quality of the instruction program.
- Lesson plans are developed that list instructional objectives, activities, and resources to be utilized during instruction. (A suggested course of study is available from the Department of Public Instruction.)
- Modern and technically accurate instructional materials and textbooks are utilized in the instruction program.
- Students have access to current trade journals and other agriculture publications.
- Instruction in safety is provided in advance of any shop or laboratory work.
- Transportation is provided for students for all planned off-campus education activities.
- Class size should be limited to 25 students. For special education, the recommended limit is ten students per class.

Validated competencies, needed by students for entry and advancement in employment, are utilized in developing objectives for the instructional program.

- A minimum of 225 minutes of class time is provided each week. Additional time is provided for cooperative programs.
- Instructors submit to the administration, advisory committee, and state office a carefully planned program of responsibilities to be assumed during the summer months.
- The high school basic agriculture education curriculum ordinarily consists of a four-year course offering, including instruction in the seven agriculture employment clusters. Responsibility for what is taught, how it is taught, and to what extent the program is expanded into specialized areas rests largely with the local school's instructor, administration, and advisory committee and is based on local needs.

Instructors submit . . . a carefully planned program of responsibilities to be assumed during the summer months.

Supervised Occupational Experience Programs

- Students are offered supervised occupational experience programs that are related to their occupational objective and appropriate in light of their ability and place of residence.
- The instructional program provides a minimum of two on-site supervisory visits for a total of four hours per student during a twelve month period.
- The instructor's schedule provides a minimum of five hours per week for occupational experience supervision during the regular school year. For co-op programs, the recommendation is one-half hour of coordination time for each student per week.
- An annual report is submitted to the school administration and state staff.
- The instructor, student, parent, or employer cooperatively develop a formal training agreement and training plan that includes essential competencies and experiences that are to be acquired during the program.
- Students participating in the occupational experience program are employed in accordance with all applicable federal and state labor laws.
- Each instructor responsible for supervision of occupational experience programs maintains adequate records to determine student progress and assist in placement.
- Each student engaged in a supervised occupational experience program maintains accurate and up-to-date records including financial transactions and competencies acquired during the program.
- Students receive school credit for all supervised occupational programs that are bona fide co-op programs.

"The best way to leave your footprints on the sands of time is to wear work shoes."
—Author Unknown

Leadership Development

- It is recommended that all students enrolled in the program be members and participate in FFA programs.
- The local FFA chapter involves members in activities at the district, state, and national levels.
- The FFA chapter provides for the specialized needs and interests of all members and reflects the instructional program.

- Leadership development activities are an integral part of the instructional program.
- Conference periods are provided so that the instructor may meet individually or with groups of students for such activities as FFA and/or Wisconsin Junior Dairymen's Association meetings.
- FFA chapter meetings are included in the school program during activity periods.
- The organization and conduct of a local chapter of FFA is recognized as an integral part of the program of agriculture education.

Student Recruitment, Enrollment, and Counseling

- Enrollment in agriculture education classes includes but is not limited to those who are interested in the study of agricultural occupations and can make arrangements for satisfactory occupational experience programs that will develop competency in relation to their occupational objectives. Agriculture education programs, while emphasizing development of occupational competence, should provide an exploratory course for students at the early high school age and maturity level.
- It is recommended that students enrolling in a specialized program of agriculture education have completed a one- or two-year basic agriculture program.
- Prospective students and their parents are visited by the instructor and provided copies of the program objectives prior to their enrollment in the program.
- A student file is maintained for all students which contains current information on occupational objectives, supervised occupational experience programs, FFA activities, complete course work, and other necessary information.
- Enrollment policies permit flexible entry and exit from the agriculture education program.
- The agriculture education instructor advises each student on a regular basis and assists those with special educational needs to obtain additional assistance from qualified school personnel.

The agriculture education instructor advises each student on a regular basis and assists those with special educational needs . . .

Public Relations

- Through an effective public relations program, the faculty, students, parents, employers, advisory council members, and the community understand the educational objectives, major activities, and accomplishments of the agriculture education program.
- The instructor makes monthly and annual reports of travel and activities to the local administration.
- The instructor establishes and maintains cooperative working relations with leaders in related industries, organizations, and agencies.

Facilities and Equipment

- The classroom and laboratory stations are adequate for the number of students enrolled.
- Facilities and equipment meet all current state and federal safety regulations.
- The classroom and laboratory are maintained in an orderly, safe, and attractive condition.
- Facilities and equipment are arranged with consideration given to effective teaching, class control, safety, and economy.
- A land laboratory (five acres optimum), convenient to the school, is provided whenever possible for use in the instructional program.
- The departmental office is located to provide optimum supervision of activities and includes a telephone for the instructor's use.
- Supplies and equipment are stored in a systematic and safe manner.
- Maintenance and service records of equipment are on file in the department office.
- Facilities are designed and used for agricultural mechanics instruction.
  - Door has sufficient width to admit entrance of farm machinery and other large equipment (14 feet wide and 16 feet high in new construction).
  - A minimum of 2,400 square feet, with at least 1,000 square feet of open floor space, is desirable and should be provided in all new construction.
  - Adequate working tools are available for the various phases of instruction, with provision for their proper storage.
  - Adequate heating, lighting, safety, and ventilation, including the safe exhaust of welding fumes as required by the Wisconsin Department of Industry, Labor, and Human Relations, are provided.
  - Adequate storage space is provided.
- Horticulture facilities are adequate and include a
  - greenhouse (20' x 50' or 70 square feet/student);
  - head house and work area (600 square feet total);
  - walk-in cooler; and
  - storage area.
- For forestry instruction, a school forest of sufficient scope, readily accessible to students, should be provided whenever possible.

The instructor is sensitive to the needs of students and can recognize and make provisions for individual student differences . . .

Staffing

- The instructor possesses the personal, technical, professional, and occupational competencies necessary to prepare students for entry-level employment or for advanced educational programs.
- The instructor is sensitive to the needs of students and can recognize and make provisions for individual student differences within the instructional program.
- Instructors are employed on 12-month contracts to provide for continuous education and supervision of students during summer months.

- The maximum assignment per instructor is 25 hours of classroom instructional time, five hours of student advising, and ten hours of supervision and preparation per week.
- The instructor is actively involved in professional teacher organizations supported by agricultural educators in the state and is engaged in continuing inservice professional development programs.
- The department has access to adequate secretarial services.
- Instructors holding provisional certification will acquire full certification within three years of original employment.
- The maximum student/teacher ratio is no more than 80 to 1.

The instructor is actively involved in professional teacher organizations . . .

Administration and Supervision

- The agriculture education program is an integral part of the local district plan for vocational education.
- In multiple-instructor departments, one instructor is appointed and compensated to serve as department head. Job descriptions are on file for all department staff members.
- The advisory council has written guidelines that specify the length of a member's term, council responsibilities, and operational procedures.
- The instructional program is supported by an annual board-approved budget that considers program needs and the number of students enrolled.
- Appropriate and accurate financial records are maintained. Administration and/or board-approved policies are provided for the receipt and disbursement of funds.

Placement

- The instructor, with the school counselor, assists in student placement and follow-up. A placement file and employment record is maintained.
- Required reports regarding placement and follow-up of graduates are submitted to the state office.

Evaluation

- One- and three-year follow-up surveys of former students are made to determine their current occupational or educational status.
- Results obtained from program evaluations are used to promote, develop, and improve the instructional program.

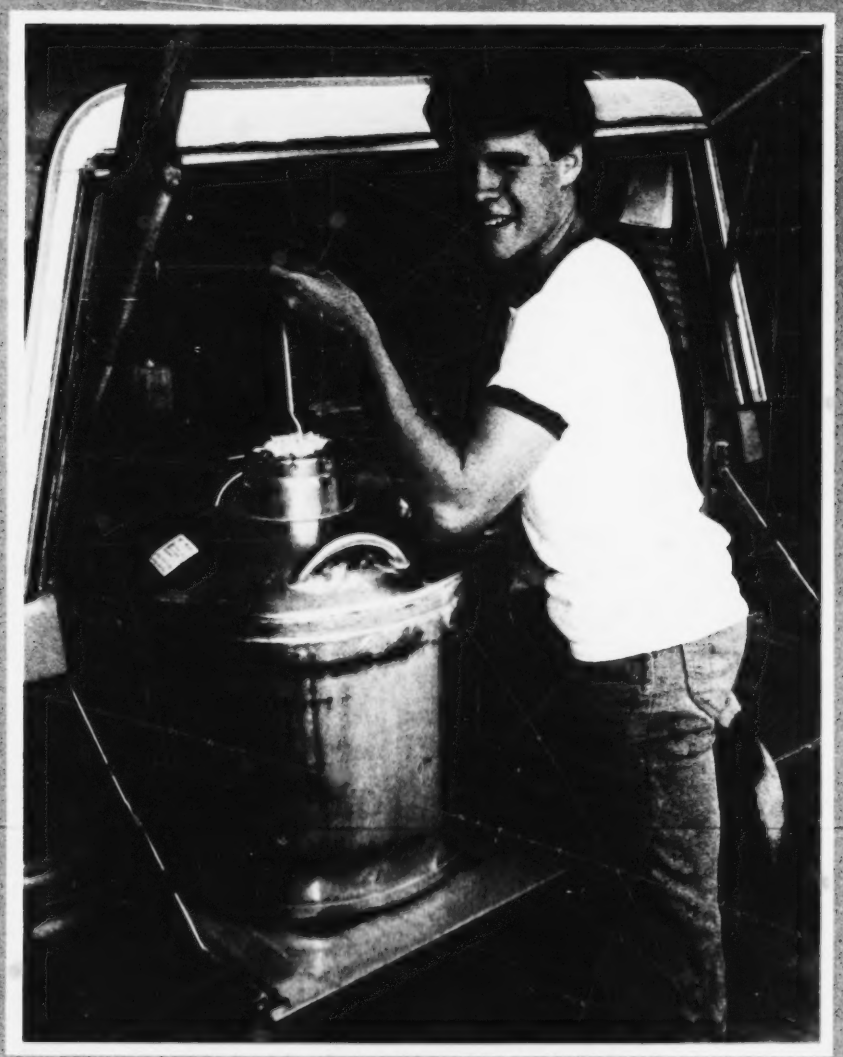
The agriculture education program is an integral part of the local district plan . . .

The purposes of this section have been to describe a process to effect sound curricular revisions and to adapt that process to apply specifically to curricular efforts in agriculture education. The suggestions given have been general so that this process can be adopted and/or modified by local districts. The next section applies these ideas in presenting a specific curriculum model and content units.

Curriculum Sequence and Content

3

Philosophical Base
Curriculum Model
Sample Agriculture Education Program
Special Components
Sample Instructional Units



Philosophical Base

"When tillage begins, other arts follow. The farmers therefore are the founders of human civilization."
—Daniel Webster

There are at least four major philosophical concepts guiding programs of education in agriculture in Wisconsin. First, agriculture education programs should be designed for and available to all students who express genuine interest in any occupation requiring knowledge and skill in the agriculture industry. In this context agriculture includes occupations in the major areas of production agriculture, providing inputs and services to production agriculture, processing and marketing the products of agriculture, developing and conserving agricultural resources, and professional careers in agriculture.

A second component of Wisconsin's philosophy is that to serve an increasingly diversified clientele, an agriculture education program must provide flexibility in a wide variety of settings. At the heart of this program is the principle of "learning by doing." A variety of methods may be used to provide practical experience in the classroom and laboratory, on the farm, and/or in the various agricultural businesses and industries.

A third component of Wisconsin's philosophy of agriculture education is that programs need to be designed at the local level. Wisconsin has a rich agricultural heritage, as well as a growing number of complex agricultural businesses. While many of Wisconsin's agriculture products end up in international trade, the local community still must be the crucible for shaping the local curriculum. The southwest area of Wisconsin is very different from the northeast area. Schools in the local communities must be free to draw upon local careers, local businesses, and local people for examples in implementing the course content that is suggested in the curriculum guide.

. . . programs should be designed for and available to all students who express genuine interest in any occupation requiring knowledge and skill in the agriculture industry.

A fourth concept is that a local program is comprised of a balance between classroom instruction, FFA activities, and Supervised Occupational Experience (SOE) programs. FFA is a leadership laboratory. It provides an opportunity for agriculture education students to acquire the leadership, communications, human relations, and group dynamic skills needed for agricultural careers. The SOE consists of all planned practical activities conducted outside of the scheduled class time and helps students acquire occupational skills and knowledge. These three components are all essential for a complete agriculture education program and must work in concert, one with another.

Curriculum Model

It is important to look at agriculture education in local districts as a K-12 program. The career development process begins with *awareness* of agriculture education, which is to be accomplished at the elementary

school level. Middle or junior high school students are involved in the *exploration* stage of the development process. Preliminary selections are made by students entering the high school program and the next three or four years are devoted to *preparation* for postsecondary study or for employment in one of the seven general occupational clusters. The projected curriculum model is shown in Figure 2. The entire agriculture education program revolves around the curriculum used in the classroom and laboratory setting. Youth organizations may provide incentives for and enhancement of learning, and occupational experience programs can reinforce subject matter and give students relevancy in applying what they have learned to a practical experience, but the curriculum is still the key and cornerstone of the successful program.

Awareness

There are many successful and tried ways in which to approach the experiences offered in a K-6 *awareness* effort.

"Food For America" and "Agriculture in the Classroom" Programs

These very adaptable and flexible programs developed by the National FFA Center and the Farm Bureau organization are designed for use by elementary school instructors for teaching their students about agriculture in their lives. Both supplement activities of a local FFA chapter. These activities usually involve FFA members going into the classroom and/or taking elementary classes out to farms and agribusinesses within the district or nearby areas to acquaint them with the agriculture industry. *Food For America* guides are available from the National FFA Supply Service, P.O. Box 15160, Alexandria, Virginia 22309. *Agriculture in the Classroom* guides are available in Wisconsin by contacting: The Wisconsin Farm Bureau, P.O. Box 5550, Madison, Wisconsin 53705. The Farm Bureau has area workshops in the use and implementation of *Agriculture in the Classroom* programs that are beneficial for elementary and agriculture education instructors.

. . . programs use gifted and talented high school agriculture education students to instruct elementary students . . .

Gifted and Talented Student Programs

These programs use gifted and talented high school agriculture education students to instruct elementary students with specific matching interests in agriculture. This is an excellent opportunity to challenge outstanding senior high students while developing the elementary student's awareness of agriculture. Credit may be given students who are involved as teachers and students. The senior high student "teacher" should work very closely on preparation with the agriculture education teacher and the elementary school program coordinator. This type of program offers maximum flexibility and is of special advantage to high school programs with a wide range of student ability levels.

Inservice for Elementary Instructors

Several school districts have had agriculture education staff provide inservice training for elementary teachers. Instruction is given in agriculture, resources available through their departments and in the area, and current directions within the seven agricultural employment clusters. The elementary instructors use this information to develop their own units for instruction related to the elementary programs. A close working relationship between elementary staff and agriculture education staff is essential to this system, which fosters improved intradistrict relations.

"The earth has music for those who listen."
—Author Unknown

Exploration

The *exploration* phase of agriculture education is directed at the fifth- through ninth-grade levels. This is where actual classroom contact with agriculture education instructors should begin. Agriculture should be part of a total vocational orientation class that could include agriculture, business, health occupations, home economics, marketing education, technology education, and vocational guidance. It is desirable that an orientation program be required for all students at a particular grade level, somewhere in the middle or junior high school years. Some schools may also find it desirable to offer an elective class in agriculture at the eighth- or ninth-grade level if the orientation class is offered prior to that time.

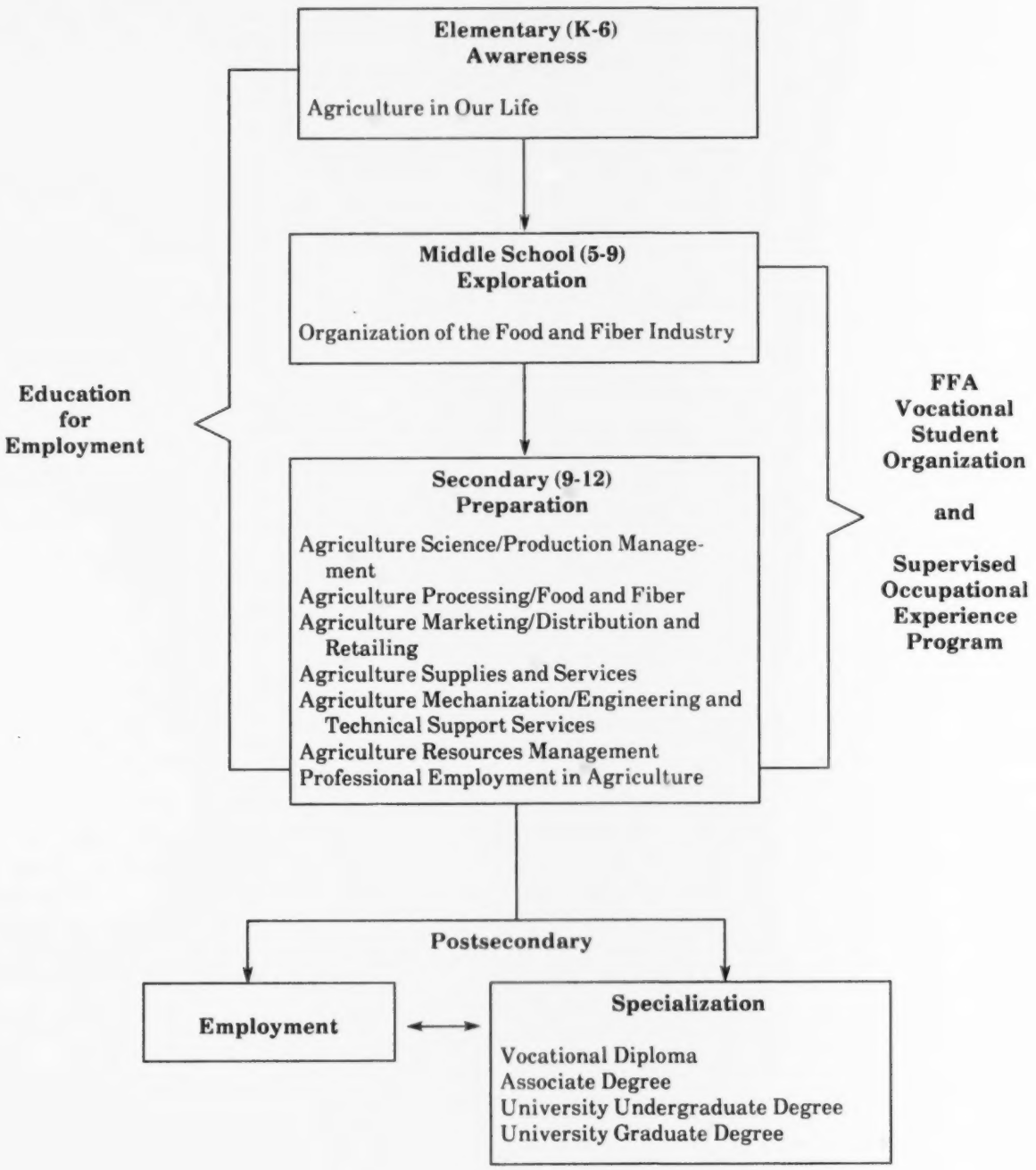
Preparation

The *preparation* phase of agriculture education includes survey and specific courses. The ninth-grade, or in some cases both ninth- and tenth-grade, levels are encouraged to offer full-year courses that have some flexibility for students to enter/depart at semesters, for those students who have an unavoidable conflict with another course. The ninth-grade course should be a survey course, but not a repetition of areas and materials covered in the orientation programs. Concepts should be addressed in all seven occupational clusters of the agriculture education program. The survey program should then be followed up by six or more semester offerings in the various cluster groups. These semesters may be "grouped" together to encourage students to take agriculture courses for the full year and to provide continuity of program for as many enrollees as possible. A complete course offering would address all the seven clusters of careers in agriculture, where size of program allows. Some offerings may be "cross-cluster," which means that they would address more than one of the agriculture clusters.

Concepts should be addressed in all seven occupational clusters of the agriculture education program.

Figure 2

Curriculum Model



Examples of "cross-cluster" courses might include:

The Dairy Industry. This course would address all aspects of the dairy industry and its related career opportunities. For example, the initial unit could consist of familiarization with dairy science and production management (traditionally, the main emphasis in agriculture education courses), with other units on processing in the dairy industry, marketing dairy and dairy products (including product research and global economic marketing), supplies and services to and from the dairy industry, mechanization in the dairy industry, the impact of the dairy industry on our national resources, and professional career opportunities in the dairy industry. Instruction should use as many resources as possible, including outside speakers, computer information, and relevant classroom materials.

Horticulture (Floral, Yard, and Garden). This course would address all aspects of the horticultural industry and its related career opportunities. The course might include plant material, culture, propagation and reproduction (including plant growth media), arrangement and preparation of plants for the consumer (including landscape design), and the marketing of horticulture products and services. Other units could include services to and from the horticulture industry and building and mechanization within the industry (including irrigation and fertilization systems, structures, and efficient use of space and ventilation systems). Environmental concerns might also be addressed, including such topics as the effects of insecticides, herbicides, and growth regulators on the environment and implications of cultivated and genetically altered varieties of plants. Professional careers in horticulture would also be explored.

. . . since one of the main goals of agriculture education is to have students "learn how to learn," the possibilities that controversial issues could develop should be weighed . . .

Some "cross-cluster" courses may not address all clusters, especially where current issues do not exist within the industry. However, since one of the main goals of agriculture education is to have students "learn how to learn," the possibilities that controversial issues could develop should be weighed and attempts should be made to make students aware of the fact that, more and more, they will need to continue to learn new skills and information as they grow within the world of work. Lifetime learning should be an emphasis of all education, including agriculture education.

To provide more flexibility in the program and provide more course offerings, some courses may be offered on an "every-other-year," or "every-third-year" basis. In this way a complete array of courses may be offered to students by a single-teacher department. To provide flexibility in course entry, the district should try to eliminate the prerequisite system for as many classes as possible. Many tenth-, eleventh-, and twelfth-grade students will not enter a ninth-grade course and therefore would not enroll in courses or programs that could be beneficial to the student's career goals.

Sample Agriculture Education Program

A department that adopts this curriculum model for its agriculture education program might develop a program similar to this sample. The course numbering system used here is based on the following premises:

- 070-level classes are open to all in grade 7,
- 080-level classes are open to all in grade 8,
- 090-level classes are open to all in grades 7-8,
- 100-level classes are open to all in grades 9-12,
- 200-level classes are open to all in grades 10-12,
- 300-level classes are open to all in grades 11-12, and
- 400-level classes are open to all in grade 12.

It is also suggested that the 200-level classes be offered every-other year, so as to expand the opportunities for students and to "concentrate" enrollments. Flexibility can be increased by offering even more courses on that basis.

. . . local decisions in the curriculum development process will actually determine the composition of local programs.

In presenting this sample program, the only intent is to provide examples of a curriculum using the current model for agriculture education. These should be viewed only as possibilities and not as required course listings. It is expected that local decisions in the curriculum development process will actually determine the composition of local programs.

070, 080, 090 Exploration (9 weeks; or semester(s) credit as appropriate). Directed toward the middle/junior high school levels, exploration courses will survey the organization of the food and fiber industry and related career opportunities. Such courses would include modified concepts from the seven agriculture career clusters.

101 Introduction to Agriculture Industry (1 year; 1 credit). This course would include an overview of the clusters of agriculture occupations and careers within these clusters. Additional units would concentrate on the establishment of the FFA, Wisconsin Junior Dairymen's Association, and the Supervised Occupational Experience programs and their record-keeping requirements. Areas of emphasis within units on the clusters of agriculture could be identified locally by an advisory committee, based on labor market information and/or a local needs assessment.

"Farmers are the only people the world cannot do without."
—Wheeler McMillen

The course should be organized in a one-year format, but students should be given the flexibility to enter and leave at semester, taking the course for a half credit. This provides an opportunity for more students to take the course if they have a required course during this period for one semester.

201 Field Conservation: Forestry and Wildlife (½ year; ½ credit). This course could include information on resource management in the areas of forests and wildlife, including science, identification, management, processing, improvement, marketing, and professional careers in

the forestry and wildlife areas. Special attention would be given to outdoor recreation management and opportunities.

202 Field Conservation: Soil and Water Management (½ year; ½ credit). The soil and water management course would include the areas of soil conservation, fertility, aeration, amendments, and characteristics relative to management of this resource. Included could be sections on water management, including watershed, groundwater, hydrologic cycle, erosion, irrigation, and the ecological concerns involved in both soil and water management. The effects of various agriculture industries would be investigated, and careers in this expanding field could be introduced.

203 The Large Animal Industry (½ year; ½ credit). This cross-cluster course could include the science and production management involved in the livestock industry and feature major units in processing and products of the animal industry, marketing animal products and commodities (including futures contracting), supplies and services to and from the animal industry, the mechanization and technical support services within the animal industry, the effects of the animal industry on our natural resources, and professional opportunities within the animal industry.

"Burn down your cities and leave our farms and your cities will spring up again as if by magic, but destroy our farms and grass will grow in the streets of every city in this country."
—William Jennings Bryan

204 Small Animal and Equine Science (½ year; ½ credit). This course would investigate and address the possibilities in the growing areas of horse science management and services and in pet care and management. The course would include units on nutrition, grooming, health concerns, boarding, and registration of pedigrees. Professional careers such as veterinary assistant, veterinarian, and others should be presented and discussed.

205 The Dairy Industry (½ year; ½ credit). This comprehensive course should address all seven occupational clusters in agriculture education as they relate to the dairy industry. Science and production, dairy processing, marketing of dairy products, service and supplies in the dairy industry, mechanization and technical support services, effect on natural resources, and professional career opportunities are all topics for inclusion in this course.

206 Floral, Yard, and Garden (½ year; ½ credit). This is a course in the growing industry of horticulture. The four main industries in horticulture should be addressed—fruit and vegetable production, turf and landscape management, nursery operations, and floriculture. Science and management, marketing, business organization and operations, growth mediums, sales and distribution, wholesale and retail operations, management of a horticulture business, and identification of materials and equipment should all be included.

301 Marketing Agriculture Products and Services (½ year; ½ credit). This course features marketing strategies for sales of agricultural commodities and services. Computer usage in this field adds to the realism of the current global economy in which we live. The course would include studies of the effects of news and outside influences such as stock markets and the changing price of the dollar on world markets and on such areas as price supports, surplus and products, and futures markets. Also to be considered would be uncontrollable factors such as weather and natural catastrophes.

302 Agriculture Mechanization Systems (½ year; ½ credit). This course would discuss and give practical-use experience to students in the various systems of mechanization. From internal combustion power to pneumatics, from manufacturing techniques through hydraulics, and from the use of computer-assisted design to robotics, the emphasis throughout would be on constantly changing uses of technologies applied to the agriculture industry.

401 Agriculture Entrepreneurship (½ year; ½ credit). Covering all aspects of business management as it relates to agriculture, this course would cover ownership transfer, leasing, taxes, inventory control, financing, payroll, retail pricing of goods and services, least-cost management, "niche" (specialty) agriculture, diversification and specialization, and management of accounts.

402 Computer Applications in Agriculture (½ year; ½ credit). This course should introduce and explore the use of computer technologies in the agriculture sciences and industry. Included should be exposure to agriculture softwares and current networks for computerized agriculture information. Computer usage in agriculture is limitless and this course would attempt to expand the outlook on this powerful assistant to tomorrow's agriculturist.

Computer usage in agriculture is limitless . . .

109-110, 209-210, 309-310, 409-410 Independent Study in Agriculture (½ year each; ½ credit each). These courses would be reserved to provide specialized opportunities for students to expand their interests beyond what is offered in the classroom phases. Cooperative contracts would be drawn up for each student between themselves, the instructor, the administration, and the parents. This approach provides maximum flexibility for scheduling and instruction.

999 Cooperative Experiences in Agriculture (½–1 year; ½–1 credit). This offering would give an opportunity for students to receive an occupational placement experience within their chosen field of agriculture. A cooperative contract could be drawn up among school, student, employer/supervisor, and parents. The supervised experience would be supplemented by classroom subject matter. A student may enter this cooperative experience by permission of the instructor and must be enrolled in an agriculture classroom course to participate. One previous course in the

agriculture field (minimum of ½ credit) would be required for entry. (**Note:** A student could be enrolled in the *Floral, Yard, and Garden* course and be participating in a cooperative experience program with a local landscape and supply house. Thus, no special cooperative classroom phase would be necessary.)

Special Components

It is essential that the agriculture education instructor integrate basic skills into the curriculum. This fortifies the basic skills of the students and allows the possibility of alternative credit being granted for agriculture programs. Also, the entire K-12 system of education in agriculture should address the K-12 vocational education requirement of Education for Employment. At the upper levels, this goal can be facilitated through greater articulation with postsecondary programs.

Integration of Basic Skills

Objectives . . . should be coordinated with the other departments to insure reinforcement of the competencies addressed.

Quality education is important to the success of any elective program in the school district and the agriculture program should be an example. Science, mathematics, social studies, and communications should be integrated into the curriculum. Agriculture programs have included mathematics and science for many years, but actual content varies from department to department. Objectives in these areas should be coordinated with the other departments to insure reinforcement of the competencies addressed. English competencies can be addressed and integrated by requiring accurate work on tests, papers, and other assignments. Correcting spelling errors and punctuation problems in a student's written work promotes correct usage in other classes and throughout the remainder of the students' lives. Activities for speaking will also promote proper usage and pronunciation.

In developing the five sample instructional units given as examples in this section, the importance of this requirement has been considered. Throughout the content outlines, areas of basic skills integration have been identified.

Education for Employment

The state standard for Education for Employment includes a K-12 career development component. This Education for Employment standard is an entire school thrust and should be instituted by the entire school system. The agriculture instructor can facilitate this program, but all staff must be committed to it. Communication and cooperation are the key ingredients to a successful K-12 implementation within a district.

Articulation

While more than half of the nation's high school graduates will enter the work force directly from high school, others will seek to specialize their occupational preparation through continuing education. Interaction between secondary and postsecondary instructors of agriculture has been both formal and informal. The Vocational Education Act (VEA) of 1963 and the VEA amendments of 1968 expanded the postsecondary agriculture programs in Wisconsin. Supervisory responsibilities for the secondary programs in vocational education were transferred from the Wisconsin Board of Vocational, Technical, and Adult Education (VTAE) to the Wisconsin Department of Public Instruction in 1967. VTAE supervisory responsibilities were directed toward postsecondary vocational education programs, and DPI responsibilities were directed toward secondary vocational education programs.

Articulation is a communication process that aims to reduce duplication of educational competencies between the various instructional levels.

Instructors in agriculture developed a variety of interactive exchanges to articulate the secondary and postsecondary programs in agriculture. Articulation is a communication process that aims to reduce duplication of educational competencies between the various instructional levels. The articulation effort is an ongoing process, which is included annually as a topic during the joint DPI/VTAE/Wisconsin Association of Vocational Agriculture Instructors (WAVAI) summer conference for agriculture instructors. The goals of joint planning and maintenance of communication between secondary and postsecondary agriculture programs are addressed through these efforts.

The benefits of articulation may include advanced standing cooperative contracts between high schools and area vocational technical colleges. Many have been developed, usually on a VTAE districtwide level, and more are constantly being written. Competency listings used to track students through the system are very helpful in goal-oriented, competency-based instruction and learning.

Many other benefits are evident through articulation as well. Staff are exposed to other programs and get a chance to see where equipment and materials are being used and can see where similar usage can be made in their own programs. VTAE districts can provide update classes or workshops within their districts for agriculture education instructors. These programs help in training current instructors in areas of new and emerging technologies.

Some schools write contracts for individual students to attend VTAE courses while still in high school. This offers maximum program flexibility, where limited resources and class sizes do not allow for specific course offerings in the secondary school.

Sample Instructional Units

. . . each unit will include a general description, objectives, competencies, subject matter outlines, and motivational and learning activities.

Instructional units for selected topics in agriculture are being developed as a curriculum planning resource for instructors in agriculture. The units are not intended to be used as teaching guides nor necessarily as course outlines. While some units will be extensive enough to serve as the basis for one or more courses, if desired, others are intended to supplement existing courses. These are decisions that can best be made locally.

At minimum, each unit will include a general description, objectives, competencies, subject matter outlines, and motivational and learning activities. Local programs of education in agriculture are expected to be an adaptation of both the individual unit information and an appropriate selection of the total units.

All units are being field tested by agriculture instructors. The field testing results are reported on a "Unit Evaluation" instrument (reproduced in Appendix C). The field-testing phase of the individual unit development emphasizes a variety of topics, including identification of teaching methodology; teaching aids and resources; assessment of science, mathematics, social studies, and communications concepts taught; examination of potential bias in material and content taught; review of the application of unit activities for special needs students; identification of environmental issues in the unit; notification of the natural resource issues addressed by the unit; assessment of computer applications to unit topics; and review of the entrepreneurial opportunities addressed and emphasized in the unit. The field-testing process results in a final examination of the unit information, and corrections are made in the units to meet contemporary technical and educational expectations of Wisconsin public schools.

Five sample instructional units have been included in this guide to demonstrate format and range of content. They are Dairy Marketing, Environmental Conservation, Exploratory Course, Forestry, and Parliamentary Procedure. The DPI plans to publish all of the units in a separate publication. Additional information concerning their availability can be secured from DPI's agriculture education consultants.

Dairy Marketing (15 days)

This unit deals with dairy marketing, which includes processing, distributing, and retailing products to the consumer. Marketing skills and their relationship to the agricultural producer and agribusiness person are emphasized. Exploring dairy marketing careers and career opportunities is an integral part of the course.

Objectives

- To acquaint students with dairy market industry employment information and career opportunities
- To analyze government regulations, support programs, and marketing orders and their relationship to the dairy product pricing system
- To enhance student comprehension of the relationship of imports and exports and their effects on dairy product supply and demand
- To examine the role of cooperatives in dairy product marketing
- To analyze the government role and its effect on dairy product pricing, standards, and supply
- To distinguish between and compare dairy product processing techniques and operations
- To develop the students' understanding of dairy product marketing channels and costs

Competencies

At the conclusion of this unit, the student will be able to

- explain current employment information such as job descriptions, job availability, personal and educational requirements, working conditions, opportunity for advancement, and other factors relative to potential employment in the dairy marketing industry and be able to relate these factors to personal needs and aspirations;
- identify the leading states in milk and dairy product production;
- describe the major marketing channels for dairy products;
- define basic terms relative to dairy marketing;
- identify and list the stages through which milk moves from the farm to the consumer;
- identify the various forces influencing prices of fluid milk and other dairy products;
- list significant laws and regulations pertaining to milk and milk products;
- recognize current methods of expanding dairy product exports and the role that each segment of the dairy industry may play;
- demonstrate an understanding of supply and demand in relation to dairy product imports and exports;
- identify examples of milk marketing cooperatives and describe how they operate;
- critically analyze government dairy support programs; and
- demonstrate an understanding of how dairy markets are expanded and how new dairy; products are researched and developed.

Subject Matter (Basic skills integration areas are shown in brackets following title.)

- Careers
  - —Current and future employment needs
  - —Job descriptions
  - —Training requirements
  - —Working conditions
  - —Opportunity for advancement
  - —Other factors relating to student needs and aspirations

- Market importance of milk and dairy products [Social Studies]
  - —Farm revenue generated by dairy products
  - —The per capita consumption of dairy products

- Centers of production of dairy products [Social Studies]
  - —Factors that affect the location of the dairy cow
  - —Leading states in milk production
  - —Leading states in butter, cheese, and other dairy products

- Market channels for milk and dairy products [Social Studies]
  - —Three stages through which milk moves from the farm to the consumer
  - —Choice of market outlet
  - —Assembling dairy products from farms

- Milk pricing and regulations [Social Studies]
  - —The history of milk pricing
  - —Factors influencing prices of fluid milk
  - —Federal milk marketing orders
  - —State milk control
  - —Cooperative marketing of dairy products
  - —Sanitary regulations of milk and dairy products
  - —Standards and grades of milk and dairy products
  - —State trade practice laws in the sale of fluid milk
  - —The price support program

- Profitability of dairy processing firms [Social Studies]
  - —Two methods of gauging the profitability of dairy firms

- Selling milk for manufacturing purposes [Social Studies]
  - —Number and size of milk manufacturing plants
  - —Condenseries and powder plants
  - —Ice cream and similar frozen desserts
  - —Cream, butter, and nonfat dry milk
  - —Cheese factories
  - —Condensed and evaporated milk
  - —Whole milk, 2 percent milk, 1 percent milk, and skim milk

- Imports and exports [Social Studies]
  - — Import quotas on dairy products
  - — Dairy products export potentials
  - — Methods of expanding dairy product exports

- Outlook for dairy products [Social Studies]
  - — Effects of dairy production
  - — Factors that contribute to changes in utilization of dairy products
  - — The role of government programs
  - — The role of foreign trade

Motivational and Learning Activities

- Take a field trip to a milk processing plant.
- Visit a milk marketing organization.
- Arrange a class presentation by milk marketing representatives.
- Create bulletin board displays.
- Show slides and films on marketing of dairy products.
- Create an occupational experience program.
- Design a flow diagram of the market channels for milk and dairy products.
- Arrange panel report on what methods of pricing are used in the market .
- Arrange panel report on employment opportunities in the marketing of dairy products.
- Display different dairy products.
- Analyze factors influencing the price of fluid milk.
- Suggest new policies for controlling milk surplus (small groups).
- Role play a trade exporting dairy products and importing automobiles.

Environmental Conservation (90 days)

This environmental conservation unit deals with major concerns affecting our environment. The unit includes topics such as conservation philosophy, wildlife management, water quality, air pollution, forestry, soil conservation, and energy conservation. It also explores available careers.

Objectives

- To acquaint students with environmental conservation industry employment information and career opportunities
- To assist students in developing a responsible philosophy dealing with our environment
- To acquaint students with the need for wildlife management as it relates to benefits of society, population trends, habitats, food availability, and control methods
- To illustrate the relationship between groundwater quality and waste disposal
- To inform learners about the consequences of air pollution and about federal regulations
- To increase understanding of the value of forests and the need for paper management
- To enhance student comprehension of soil formation, the effects of erosion, and the approved conservation practices
- To emphasize importance of energy conservation and methods to minimize waste products

Competencies

At the conclusion of this unit, the student will be able to

- explain current employment information such as job descriptions, job availability, personal and educational requirements, working conditions, opportunity for advancement, and other factors relative to potential employment in the environmental conservation industry and be able to relate these factors to personal needs and aspirations;
- describe environmental factors that benefit or reduce wildlife in the locality;
- recognize the importance of plant life as a source of food for all animals;
- list specific food sources and habitats for area wildlife;
- understand rules and regulations for hunting and fishing;
- describe the causes and effects of acid rain in Wisconsin;
- identify major air contaminants found in Wisconsin's air and problems with each;
- determine sources of air pollution in Wisconsin;
- identify and explain ways of controlling diseases and insects found in Wisconsin;
- determine when insect and disease damage has occurred in trees;
- understand soil origin, texture, color, structure, and the interrelation of plants and soil;
- take a soil sample and properly prepare it for analysis at a soil laboratory;
- become familiar with factors that determine soil erosion;
- identify common soil conservation practices and appreciate their value;
- explain the effect of water pollution on fish populations; and
- identify energy safety hazards and explain how to avoid them.

Subject Matter (Basic skills integration areas are shown in brackets following title.)

- Careers
  - — Employment information
  - — Job training
  - — Working conditions

- Conservation philosophy [Science]
  - — Conservation vs. preservation
  - — Increased stress on environment
  - — Resource management
  - — Renewable resources
  - — Nonrenewable resources

- Wildlife management [Science]
  - — Benefits to society
  - — Values (economic and aesthetic)
  - — Food webs and habitat
  - — Population trends
  - — Inventory control
  - — Mammals, fur bearers, birds, waterfowl
  - — Diseases and parasites

- Water quality [Science]
  - — Our water supply
  - — Dependence on water
  - — Water pollutants
  - — Hydrologic cycle
  - — Industrial and residential water consumption
  - — Maintaining groundwater quality (point and nonpoint pollution)
  - — Wisconsin as a water-rich state

- Air pollution [Science]
  - — Effects on environment
  - — Sources of pollution
  - — Contaminants
  - — Federal standards
  - — Prevention methods

- Forestry [Science]
  - — Classification and identification
  - — Importance of trees
  - — Production and management practices
  - — Commercial uses of different species
  - — Tree planting
  - — Forestry programs
  - — Forestry skills and techniques
  - — Chainsaw safety
  - — Disease and insect control

- Soil conservation [Science]
  - — Process of soil formation
  - — Soil properties
  - — Soil survey maps
  - — Land-use capabilities
  - — Fertilizer types and application
  - — Soil erosion and its effect on the environment
  - — Soil conservation practices
  - — Importance of organic matter

- Energy conservation [Science]
  - — Energy facts and figures
  - — Energy alternatives
    - Solar
    - Wind
    - Fuels
    - Water
    - Heat exchanges
    - Nuclear
  - — Conserving farm energy
  - — Energy saving tips
  - — R values of insulation materials

Motivational and Learning Activities

- Take field trips to
  - — farms using good erosion and pollution controls, and
  - — wildlife game farms.
- Arrange for resource speakers, such as
  - — Department of Natural Resources environmental protection staff,
  - — Soil Conservation Service staff,
  - — game manager,
  - — Agricultural Stabilization and Conservation service staff,
  - — Trees for Tomorrow staff (Eagle River, WI),
  - — University of Wisconsin-Extension forestry staff,
  - — University of Wisconsin-Extension environmental education staff,
  - — local consulting foresters, and
  - — industry staff in environmental quality control.
- Create bulletin board displays of
  - — plant and animal species,
  - — pictures and life cycles of natural enemies of plant and animal species, and
  - — soil profiles or charts.
- Plan a wildlife unit in which students
  - — take a field trip to fish hatchery or game reserve/preserve;
  - — study Wisconsin deer harvest ;
  - — develop food chain charts or posters;
  - — lisen to resource speakers (game warden, county forester, soil conservationist, and environmental protection agency personnel); and
  - — develop a community wildlife scorecard with cause and effect relationships.

- Plan a water quality unit in which students
  - — take a field trip to a contaminated lake or stream;
  - — take a field trip to a sewage treatment plant and/or garbage disposal facility;
  - — calculate water use for an average household per day;
  - — make a poster on water problems in Wisconsin;
  - — examine lake water under microscopes to see what may be found;
  - — take a water sample from home for state quality test;
  - — participate in a class debate on acid rain problems and solutions;
  - — dissolve limestone rock with an acid rain solution; and
  - — make posters on the acid rain controversy.

- Plan an air pollution unit in which students
  - — participate in a class debate concerning the pros and cons of government pollution laws and regulations;
  - — examine used filters from air conditioning and heating units;
  - — conduct a paper filter experiment with cigarette smoke; and
  - — collect labels on air quality hazards from aerosol sprays (relate to ozone layer).

- Plan a forestry unit in which students
  - — visit a lumber yard with different grades and types of lumber;
  - — tour a pulpwood processing or waferboard plant;
  - — participate in occupational experience programs;
  - — attend workshops at a nearby woodlot or school forest;
  - — attend a tree planting demonstration;
  - — demonstrate the safe use of a chainsaw;
  - — select and mark trees for cutting;
  - — identify tree species in nearby woodlot or school forest;
  - — prune, thin, and shear trees in nearby woodlot or school forest; and
  - — develop a hiking trail through nearby woods or school forest with labelled trees.

- Plan a soil conservation unit in which students
  - — take soil samples and send to state laboratory;
  - — locate home on a soil survey map;
  - — dig a pit for soil judging contest;
  - — take a field trip to area farms employing excellent conservation practices;
  - — develop an organic matter and water runoff relationship;
  - — complete a worksheet on fertilizer arithmetic; and
  - — make a soil profile of their homes.

- Plan an energy conservation unit in which students
  - — take a field trip to a nuclear power plant;
  - — write an article on energy conservation to be published in the local or school paper;
  - — demonstrate proper procedure for weatherstripping and caulking doors and windows;
  - — take a field trip to a farm with a wind generator;
  - — design an insulation experiment to be used in class;
  - — collect a list of raw materials that could be used as an energy source; and
  - — develop a home energy audit.

Exploratory Course (45 days)

This unit deals with exposing junior high/middle school students to the world of agriculture education. Topics covered include careers, FFA, animal science, plant science, and natural resources.

Objectives

- To introduce the seven agricultural occupation clusters to students
- To enhance student understanding of FFA as an integral component of the total agricultural program
- To develop an understanding of Wisconsin, American, and international agriculture and its importance to people and the economy
- To increase student comprehension of agriculture as an applied science in plant and animal products
- To examine the role of agricultural mechanics and safety programs in the agricultural industry
- To develop an understanding of consumer needs for agricultural products and the marketing system

Competencies

At the conclusion of this unit, the student will be able to

- appreciate the range of educational and career opportunities in agriculture;
- recognize the unique opportunities presented by the FFA and Supervised Occupational Experience programs;
- demonstrate an awareness of the world's need for agriculture;
- characterize the field of agriculture and related industries in the United States;
- consider relationships between work, education, and lifestyle;
- demonstrate a better understanding of the various concepts and content areas comprising the agricultural curriculum at the high school level;
- become more aware of the presence and significance of agriculture in his or her own life and in the community;
- identify erosion problems and soil conservation efforts in the local area;
- appreciate the need to develop a safety mindset as a means of reducing occupational hazards;
- identify major technological changes affecting or likely to affect agriculture;
- recognize the various production processes and distribution channels that exist between agricultural producers and the consumer; and
- better understand the relevance of basic skills (reading, writing, spelling, mathematics, and specific content areas) to the world of work generally and to the field of agriculture particularly.

Subject Matter (Basic skills integration areas are shown in brackets following title.)

- Careers in agriculture
  - — Agricultural occupations
    - Agriculture science/production management
    - Agriculture processing/food and fiber
    - Agriculture marketing/distribution and retail services
    - Agriculture supplies and services
    - Agriculture mechanization/engineering and technical support services
    - Agriculture resources management
    - Professional employment in agriculture
  - — Agricultural career statistics
    - Percent of population involved in production agriculture
    - Number of workers involved in manufacturing and selling farm supplies (feed, seed, fertilizer, etc.)
    - Number of workers involved in processing and distribution of farm products
    - Number of workers involved as science, engineering, management, and financial specialists
    - Number of workers involved as education and communication specialists
    - Future trends in agriculture technology and their effect on careers

- Orientation to the FFA
  - — Agriculture education and the FFA
  - — History of the FFA
  - — Importance of the Supervised Occupational Experience program to the FFA experience

- American agriculture [Social Studies]
  - — Definitions
    - Agribusiness
    - Agriscience
    - Agritechnology
    - Production agriculture
  - — Major types of production agriculture
    - Crop production
    - Meat animal/poultry production
    - Dairy production
    - Specialty crops
  - — Importance of agriculture to the economy
    - World population
      - growth rate
      - location of people in relation to food production
    - World land utilization
      - crop land
      - grazing land
      - urban utilization (cities, roads, developments, etc.)
      - wasteland (available for wildlife and recreation)

- Agriculture in Wisconsin [Social Studies]
  - — Dairying
  - — Cereal crops
  - — Specialty crops
  - — Fruits
  - — Vegetables
  - — Forest production
  - — Livestock production
  - — Other agricultural products and their relative importance

- Basic plant science [Science]
  - — Basic principles of plant growth
    - Preparing soil for planting
    - Planting
    - Germination and growth
  - — Horticulture
    - Beauty and aesthetics
    - Need for trained specialists in these areas
    - Importance and value to society
    - Topics to be discussed:
      - flowers
      - trees
      - shrubs
      - turf
      - landscaping
      - gardening and garden plants
  - — Wisconsin field crop production
    - Corn
    - Oats
    - Barley
    - Wheat
    - Soybeans
    - Forage crops
    - Speciality crops
    - Canning crops

- Large animal production (including care, management, etc.) [Science]
  - — Dairy
  - — Beef
  - — Swine
  - — Poultry
  - — Sheep
  - — Horses
  - — Specialty animals

- Small animals [Social Studies]
  - — Importance and value to society
    - Fulfill emotional needs
    - Teach important values
    - Provide a profitable business

— The care, feeding, management, and training of small animals
  Dogs
  Cats
  Guinea pigs
  Hamsters
  Mice
  Turtles
  Fish
  Snakes

- Natural resources [Science]
  — Developing a conservation philosophy
    Conversation vs. preservation
    Natural resources
      renewable: air, water, soil, forests, and wildlife
      nonrenewable: minerals, petroleum, etc.
  — Basic principles of soil
    Defining soil
    Soil properties (texture, structure, and tilth)
    Testing and determining fertilizer needs
    Wise use and management of soil
  — Basic principles of water management
  — Basic principles of wildlife
    Populations
    Habitat

- Basic agricultural mechanics [Mathematics]
  — Safety
  — Use and care of common laboratory equipment
  — Skills needed

- Safety in agriculture
  — Safe practices in agriculture/agribusiness
    Safety around home
    Safety in the laboratory
    Farm and industry safety
  — FFA safety program

- Agriculture products and the consumer [Science]
  — Dairy products
    Milk
    Ice cream
    Yogurt
    Cheese
    Others

— Meat products
  Beef
  Pork
  Chicken
  Turkey
  Others (sausage, etc.)
— Marketing and the consumer
  Pricing
  Processing
  Quality standards of food products
  Food products advertisement

Motivational and Learning Activities

- Take field trips.
- Arrange guest speakers.
- Show films, filmstrips, slides.
- Create bulletin board displays.
- Research and list various agricultural careers.
- Collect common crops and crop seed.
- Dissect corn and bean seed.
- Take a soil sample.
- Make simple dairy products.
- Research a favorite breed.
- Research a wildlife species.
- Propagate plants.
- Organize a junior high FFA.

Forestry (90 days)

This unit deals with forest management. Topics include careers; tree identification; measurement of land and forest products; land description; nursery management; propagation; site selection; disease and insect control; harvesting procedures; equipment and safety practices; marketing; multiple-use concept; forest laws and policies; and FFA forestry contest.

Objectives

- To acquaint students with forestry industry employment information and career opportunities
- To familiarize students with the characteristics, habitat, and commercial use of common tree species
- To inform learners about forestry skills and techniques
- To enhance students' awareness of good woodland and forestry management factors
- To emphasize the importance of nursery management
- To familiarize students with methods of propagation
- To acquaint learners with tree planting factors and techniques
- To increase student knowledge of harvesting and marketing woodland products
- To inform students about forestry land use options and forest land policies and programs
- To acquaint learners with FFA forestry contest

Competencies

At the conclusion of this unit, the student will be able to

- explain current employment information such as job descriptions, job availability, personal and educational requirements, working conditions, opportunity for advancement, and other factors relative to potential employment in the forestry industry and be able to relate these factors to personal needs and aspirations;
- identify, by common name, species of trees common in the area;
- recognize the characteristics of tree species used for correct identification;
- discuss the principles of plant growth and reproduction and the parts of a plant and their function;
- define and explain the "multiple use" concept in forestry;
- diagram and explain the different harvest methods used to insure reproduction of desired species;
- list different ways in which seedlings are produced;
- identify site and soil requirements essential for successful tree propagation;
- list and describe the steps in safely harvesting a tree and cutting it into desired lengths;
- explain different types of logging methods;
- give the size specifications and species for types of cut forest products;
- identify insect pests common to trees;
- describe diseases common to trees;
- arrive at the correct compass bearings and size in acres for a designated forest area;
- set up a fire protection plan;

- prepare mounts of leaves found in Wisconsin;
- identify federal and state policies and programs having an impact on woodlot and forest establishment and management;
- explain how the history of forestry in the region developed;
- develop a marketing plan for forest products;
- describe the principles of Christmas tree production; and
- identify current tools and equipment used in forest harvest operations.

Subject Matter (Basic skills integration areas are shown in brackets following title.)

- Careers
  - — Current and future employment needs
  - — Job descriptions
  - — Training requirements
  - — Working conditions
  - — Opportunity for advancement
  - — Other factors relating to student needs and aspirations

- Forestry positions
  - — Manager
  - — Owner/manager/grower
  - — Geneticist
  - — Sawmill operator
  - — Word products manufacturer
  - — Lumberyard sales
  - — Christmas tree sales
  - — Paper industry
  - — Other related occupations

- Tree identification [Science]
  - — General and scientific terms
    - Characteristics
    - Habitat
    - Major commercial use
  - — Specimens
    - Collection
    - Preparation

- Forestry skills and techniques [Mathematics]
  - — Units of measurement
    - Land
    - Forest products
  - — Cruiser stick
  - — Scaling logs
  - — Methods of forest inventory
  - — Growth rates

- Woodlands and forestry
  - — Farm woodlands
  - — Industrial forests
  - — National, state, county, and municipal forests
  - — Services from woodlands
  - — Forest regions in the United States
  - — Woodlands in the national economy
  - — History of woodland utilization
  - — Phases of woodland management

- Nursery management [Science]
  - — Soil requirements
  - — Planting seed
  - — Protection practices
  - — Transplanting
  - — Harvesting

- Propagation [Science]
  - — Selection
  - — Propagation by cuttings
  - — Propagation by seeds and nuts
  - — Germination time

- Site selection [Science]
  - — Soil

- Tree planting
  - — Selection factors
  - — Ordering
  - — Plantation, windbreak, and shelterbelt planning
  - — Site preparation
  - — Planting techniques
  - — Fertilizer usage
  - — Maintenance

- Plantation and forest management
  - — Protection
    - Fire
    - Insects
    - Disease
    - Wildlife
    - Competition
  - — Management practices influencing growth

- Harvesting woodland products
  - — Logging
  - — Transportation
  - — Sawmill operation
  - — Seasoning lumber

- Marketing woodland products [Social Studies]
  - — Considerations in marketing
  - — Stumpage values
  - — Selling
    - Logs
    - Pulp and cordwood
    - Sawed lumber
    - Christmas trees
    - Maple syrup
    - Miscellaneous
  - — Timber sale contracts

- Multiple use of forest lands [Social Studies]
  - — Forestry research
  - — Forest products
  - — Water conservation
  - — Range management
  - — Wildlife management
  - — Recreation

- Forest policies and programs [Social Studies]
  - — Federal
  - — State
  - — Private
  - — Forestry legislation

- Rules for state forestry contest

Motivational and Learning Activities

- Take a field trip to a woodlot or small forest with a variety of tree species.
- Take a field trip to a pulp processing plant.
- Take a field trip to a lumber company with different grades and types of lumber.
- Visit a sawmill operation and observe the various operations and mechanizations of a modern facility.
- Observe films, filmstrips, and slides.
- Take a field trip to a logging site.
- Attend a logging congress.
- Arrange talks by the following resource people:
  - — tree farm forester,
  - — consulting forester,
  - — chainsaw company representative, and
  - — county forester.
- Visit a Christmas tree operation.
- Visit a forest products plant, such as a door, window, particle board, or plywood plant.
- Participate in the Supervised Occupational Experience program.
- Demonstrate the safe use of a chain saw.
- Plant trees in a nearby woodlot or school forest.
- Prune trees in a nearby woodlot or school forest.

- Have each student sharpen an ax properly.
- Identify trees surrounding the school.
- Estimate board feet of lumber in standing timber.
- Select and mark trees for cutting.
- Have students draw plans for a forest, applying multiple-use concepts.
- Have students do experiments with photosynthesis.
- Have students experiment with seed germination.
- Develop a walking trail through a forest with tree identification.
- Create bulletin board displays.
- Have students report on an area of interest in forestry.

Parliamentary Procedure (8-20 days)

This unit deals with the conduct of meetings and the proper use of parliamentary terms. Simulated meetings should be conducted for the student's hands-on experience.

Objectives

- To assist students in comprehending the need for a procedure that enables the business of an organization to be transacted in an orderly and effective manner
- To familiarize students with the accepted language that enables an individual to participate effectively in a meeting
- To distinguish between the various types of motions and their order of precedence
- To acquaint learners with the components and order of a well-run business meeting
- To identify parliamentary terms and assist students in comprehending their proper usage in a meeting

Competencies

At the conclusion of this unit, the student will be able to

- explain the purpose of rules governing how meetings and public debates are run;
- list the officers of an organization and their duties within an organization;
- prepare an agenda for a meeting;
- call a meeting to order;
- correctly introduce a motion as an item of business;
- amend a main motion;
- refer an item of business to a committee;
- stop or limit debate;
- postpone indefinitely and definitely;
- move the previous question;
- lay an item of business on the table;
- take an item of business from the table;
- call for a point of order;
- demonstrate an appeal from the decision of the chair;
- demonstrate how to withdraw a motion;
- properly ask for or gain parliamentary procedure information;
- call for a division of the house;
- correctly demonstrate how to ask for a suspension of the rules;
- rise to a question of privilege;
- demonstrate the proper way to reconsider a motion;
- rescind a motion passed at an earlier meeting; and
- properly adjourn a meeting.

Subject Matter (Basic skills integration areas are shown in brackets following title.)

- The role of parliamentary procedure in the conduct of meetings [Communication]
  - — Purpose
    Enable people to conduct business in an orderly fashion
  - — Need for establishing a procedure for the conduct of meetings
    Members know what to expect
    Greater number of participants
    Important items not overlooked
  - — Agenda (order of business)
    Call to order
    Opening ceremony
    Roll call or announcement of attendance
    Officer reports
    secretary's report
    treasurer's report
    other officer's report
    Committee reports
    Unfinished business
    New business
    Closing ceremony
    Adjournment
    Recreation and refreshments
    Special programs—can be inserted anytime in the meeting convenient for the speaker

- The definition of parliamentary terms [Communication]
  - — Adhere
    Attach to
  - — Adjourned
    A meeting that is a legal continuation of a previous meeting; the meetings making up one session
  - — Adopt
    Accept or agree to
  - — Agenda
    An outline of the order of business to come before the group
  - — Ballot
    A secret vote written on a slip of paper
  - — Bylaws
    Fundamental rules or laws of an organization (also used to include constitution)
  - — Committee
    A group of members selected for specific duties
  - — Dilatory motion
    A frivolous or absurd motion used to delay action
  - — Ex officio
    By virtue of office (the president may be an ex officio member of certain committees)
  - — General consent
    Consent without a single objection (also called unanimous consent)

— Germane
Closely related to or having a direct bearing on the pending question
— Indecorum
Improper conduct or behavior
— Main motion
A motion that brings business before the assembly
— Majority
More than half
— Majority vote
More than half of the votes cast
— Meeting
A single official gathering to transact business
— Member
An individual having the right to full participation in meetings (right to make motions, debate, and vote)
— Minutes
The written report of the proceedings of a meeting
— Motion
A formal proposal that certain action be taken
— New business
Matters presented to the assembly for consideration that had not been carried over from previous meetings
— Parliamentary procedure
Rules used by an organization to conduct its meetings
— Pending question
A motion that has been stated by the chair and is under consideration by the assembly
— Plurality vote
Largest number of votes given to any of the choices when three or more choices are possible
— Precedence
Order of priority of motions
— Prevailing side
The winning side after a vote
— Previous notice
Announcement that a particular motion will be introduced at the next meeting
— Pro tempore
Temporary, for the time being
— Putting the question
Placing the motion before the assembly for a vote
— Question
A motion to vote
— Quorum
The minimum number of members that must be present at a meeting for business to be legally transacted
— Roll call vote
A vote taken by calling out the names of the members for the purpose for recording how each member votes

— Rules of order
  Rules that relate to parliamentary procedure
— Session
  A meeting or series of connected meetings devoted to a single order of business
— Special committee
  A committee formed to perform a special function; will dissolve upon completion of its task (also called ad hoc committee)
— Standing committee
  Permanent committee that performs continuing functions
— Standing rules
  Rules that relate to details of administration rather than relating to parliamentary procedure
— Unfinished business
  Business carried over from the previous meeting
— Vote
  A choice, either positive or negative, made by a member or group of members
— Yield
  Concede to, give way to

- The development of student awareness and proficiency in parliamentary procedure through simulated meetings [Communication]
  — Kinds of offices and duties of each
  — Procedure for selecting officers
  — Proper use of the gavel
  — How to assume the position of the chairperson
  — Proper procedure for obtaining the floor
  — The types and purposes of motions
    Ranking motions
    1. privileged motions
       fix the time to adjourn to (sets the time for the next meeting)
       adjourn (end meeting)
       recess (takes a break in the meeting)
       raise a question of privilege (permits a request concerning the rights of the assembly to be brought up immediately)
       call for the orders of the day (requires the assembly to conform to the adopted agenda)
    2. subsidiary motions
       lay on the table (delays action on a motion)
       previous question (stops debate and calls for immediate vote)
       limit or extend limits of debate (limits or extends time for debate on a motion)
       postpone to a certain time (delays actions on an item for a specific time)
       amend (changes the intent of meaning of a motion)
       postpone indefinitely (prevents a vote on a motion and may kill it)
    3. main motions (motions that bring business on the floor)
       ratify (a motion to approve action already taken by a member or a group of members without the consent of the chapter)

Nonranking motions (requires ruling of the chairperson in enforcing the rules)

1. incidental motions
   - point of order (method used by a member to gain greater clarification on items of business)
   - appeal the rule of the chair (prevents chairperson from becoming a dictator)
   - suspend the rules (allows group to conduct business contrary to the rules of order or standing rules)
   - object to the consideration of a question (used to prevent undesirable main motions from coming before the assembly)
   - division of the assembly (calls for a revote)
   - division of a question (divides a main motion in two parts so it can be acted on separately)
   - method of nominating or voting (used to determine the way to nominate officers and vote)
   - nominations (determines the method of nominations)
   - point of information (method used to gain clarification on item of business)
   - parliamentary inquiry (used to obtain parliamentary information)
2. motions that bring a question before the assembly
   - take from the table (considers a motion for the second time)
   - reconsider (allows the majority of the assembly to bring back a motion already acted upon)
   - rescind and amend something previously adopted (used to change an action previously taken) Rescind is a motion that can be used to cancel or annul previous action.

Motivational and Learning Activities

- Attend business meetings of agricultural or civic organizations.
- Develop bulletin board displays.
- Organize mini-FFA chapter in class.
- Identify resource people to speak on officer responsibilities within organizations.
- Present films, filmstrips, and videotapes.
- Organize role playing of officers in an annual meeting.
- Compile a list of parliamentary terms, their meaning, and how each is used.
- Serve as a chairperson during a simulated meeting.
- Prepare a written report of a committee meeting.
- Deliver an oral report of a committee meeting.
- Record minutes of a meeting and submit them to class members for their evaluation.
- Compile a list of business organizations in the area, their officers, and the duties associated with each office.
- Introduce items of business and participate in debate during simulated meetings.
- Plan for team competition within the classroom.
- Provide a demonstration team for community service organizations.

Delivery Mechanisms

4

Organizations
Advisory Committees
Problem-Solving Approach
Supervised Occupational Experience

FFA

FFA is a national organization for students enrolled in agriculture education programs in public schools. It is an intracurricular activity and an integral part of any agriculture education program. Through the Education in Agriculture and Supervised Occupational Experience (SOE) programs, FFA offers students a chance to improve their personal and agricultural skills before they leave high school. Leadership, employer/employee relations, communication skills, human relations, and group dynamics are all areas developed by FFA that have been identified by business as extremely important to success in the world of work.

Leadership, employer/employee relations, communication skills, human relations, and group dynamics are all areas developed by FFA that have been identified by business as extremely important to success . . .

Competition in such activities as parliamentary procedure, public speaking, and the FFA creed contest encourages students to sharpen their leadership and communication skills. Individual proficiency awards and judging contests motivate students to improve their agriculture skills and competencies and to learn from their Supervised Occupational Experience programs.

FFA members may also increase their skills through scholarships and grants for various programs. Currently, Wisconsin FFA offers Washington Conference Scholarships for member participation in the National Leadership Training program held in Washington, D.C. Scholarships are also provided for participation in the Work Experience Abroad program, which offers opportunities for members to go to a foreign country and experience its agriculture while improving relations and communications on a personal basis. The FFA Foundation has developed several endowment funds to provide scholarships for continuing education for members on both the state and national levels.

Many skills in teamwork, cooperation, and group dynamics are developed through the FFA chapter awards programs. Building Our American Communities program allows students to learn how to help develop their communities through active participation in community development programs and projects. They learn to work with school officials, as well as local, county, state, and federal officials and agencies in improving their home areas. National Chapter Safety programs help sharpen students' awarenéss of a safe attitude in work and home situations and recreational activities by developing and carrying out safety programs in their communities. The National Chapter Award program aids in the development of well-rounded individuals as it includes activities in planning, cooperation, public relations, community service, recreation, and others. In addition, on the state level, the Energy Conservation Award is designed to improve student awareness of wise use of our energy resources, and the Food for America program allows students to tell others about the opportunities and wide-reaching impact that agriculture and agribusiness have on the world.

"FFA members believe in leadership, citizenship, and patriotism. They believe in free enterprise—in freedom under the law—in making their homes, schools, and communities better places in which to live and work."
—1987 FFA Manual

Wisconsin FFA chapters are preparing young people for hundreds of careers in agriculture, agribusiness, and agriculture-related fields. FFA serves more than 16,000 members in Wisconsin and more than 400,000 members nationwide. Students may retain membership up to the fourth national convention (November) following high school graduation. FFA allows students to showcase their efforts and to improve their skills through competition and recognition programs.

Wisconsin FFA chapters are preparing young people for hundreds of careers . . .

Wisconsin FFA Alumni Association

The Wisconsin FFA Alumni Association is a chartered member of the National FFA Alumni Association, which was organized in the early 1970s to support agriculture education and the FFA. Membership in both state and national organizations is open to any former active, collegiate, or honorary FFA member as well as to any other individual interested in supporting agriculture education and the FFA.

Wisconsin has long been a leader in its FFA Alumni Association, with the largest membership and number of affiliates in the nation. The state currently has more than 200 affiliates and nearly 8,000 active members.

FFA alumni on the local level have been instrumental in maintaining and improving agriculture education/FFA departments. Their support has significantly improved programs. The Wisconsin FFA Alumni Association has members from all walks of life and of all ages. The annual meeting is held each February in different sections of the state.

The Wisconsin FFA Foundation

The primary objective of this FFA-affiliated organization, formed in 1983, is to provide funding and support for the Wisconsin FFA Association. Donations made to the organization may be to the general fund, endowment fund, memorial funds, sponsored projects, or special and deferred-giving programs.

The Wisconsin FFA Alumni Association has members from all walks of life and of all ages.

Wisconsin Junior Dairymen's Association

The Wisconsin Junior Dairymen's Association (WJDA) is the only one of its kind in the nation. The purpose of the program is to offer activities for those students with a specific interest in the dairy industry. Programs and recognition are offered in areas of communication, marketing, efficient production, classification of animals, sire selection, processing, feed management, production, and leadership skills.

Advisory Committees

The State Superintendent's Advisory Committee for Agriculture Education supports by its example the requirement that all schools with vocational education programs need to have local advisory committees organized for each vocational education area. The major functions of advisory committees are to assist in planning, developing, and evaluating the local program.

The major functions of advisory committees are to assist in planning, developing, and evaluating the local program.

Membership on advisory committees for agriculture education programs should include farmers, agribusiness people, agricultural agency representatives, and parents. The committee should also include people from school administration, the school board, and the guidance staff as ex officio members. All members would be appointed by the school board with membership terms staggered, often for three years.

Each local advisory committee is expected to have a written set of policies and bylaws. Specific assignments within the advisory committee, such as the duties of chairperson and secretary; length of terms; membership selection; major responsibilities; and so forth should be written in the document. The most successful committees are those that provide leadership from within the committee rather than relying upon the instructor or instructors. Meetings should follow an agenda mutually determined by the committee chairperson and instructor.

The committee's functions are advisory in nature rather than administrative. All recommendations of the committee should be recorded in the minutes of committee meetings to avoid misunderstandings. The minutes are then channeled through a route that usually includes the chairperson, instructor, school administrators, and school board members.

The advisory committee members . . . provide a communication link . . .

The advisory committee members are expected to provide a communication link between the agricultural industries and the agriculture education program. The committee can assist with

- developing philosophy and objectives of the agriculture program;
- implementing standards for the agriculture program;
- developing and evaluating the facilities, equipment, curriculum, FFA program, and other aspects of the program;
- surveying local and state employment needs in agriculture and assisting in placing students;
- reviewing budget requests for obtaining materials, supplies, and equipment for the agriculture program;
- assisting in identifying resource people who can support the instructional program in agriculture; and
- influencing state and federal legislation that would affect vocational and agricultural education.

The number of meetings for the advisory committee is determined by the local committee. It is recommended that each committee meet at least twice per year.

Problem-Solving Approach

The traditional approach to teaching agriculture has been, and is, problem solving. This approach encourages the application of principles and concepts to actual situations in the industries of agriculture. Originally this approach was aimed at the supervised occupational experience programs of farm students, who were the majority of agriculture students. As the agriculture industry grew and topics in the classes expanded, the use of this teaching approach expanded. Today, applying the knowledge and skills taught in the agricultural classroom to actual agricultural situations continues to be important, but problems considered during the teaching process often go beyond the scope of student-supervised occupational experience programs in contemporary agriculture classes.

"The best teacher [is] . . . one who helps you want to learn."
—Author Unknown

The problem-solving approach stimulates creative thinking, student interest, and the decision-making process. It also makes instruction more personal to students and helps them build confidence in themselves. Through the use of this method of teaching, students discover problems and answers to these problems. The role of the teacher is also different. Rather than actively stuffing the students with technical information which they may or may not be interested in knowing, the teacher passively guides the learning process that allows students to learn for themselves. . . .

The key to the versatility of the problem-solving approach is that it is totally unlimited in the types of techniques that can be used to provide technical information needed to solve problems identified by students. Problem solving sets the stage for effective teaching and effective learning and allows for instruction on a group or individual basis.

The problem-solving approach stimulates creative thinking, student interest, and the decision-making process.

Another uniqueness of problem solving is that it fits well with competency-based instruction. The problems identified by students are actually competencies which need to be learned. Guidance by the instructor helps to assure that appropriate problems and objectives are identified. . . .

Problem solving achieves one of the primary goals of education, which is to teach young people how to think. With its versatility, it is adaptable and flexible in nature. It proves to be an effective approach to teaching by stimulating interest, decision making, self confidence and achievement. Problem solving needs to be a part of the instructional program of all vocational agriculture instructional programs.*

*Martin K. Auville, "The Versatility of Problem Solving," *The Agricultural Education Magazine* (54.10, April 1982), pp. 7-8.

Problem solving is the foundation that makes effective teaching possible. A major factor in the learning process of the agriculture program is this approach to teaching. Instructors in agriculture are encouraged to use the problem-solving approach.

Supervised Occupational Experience

The *Supervised Occupational Experience Handbook* was developed as a special project of the National FFA Foundation. Agricultural education professionals from throughout the United States were involved with the development of the handbook. The handbook explains the supervised occupational experience program.

Supervised Occupational Experience is planned application and development of agricultural competencies in a learning environment . . .

SOE consists of all the planned practical activities conducted outside of scheduled class time in which the student develops and applies agricultural knowledge and skills. Students in SOE are supervised by teachers, parents, employers, or other adults who assist them in achieving their educational objectives. The competencies to be developed should be determined cooperatively by the student, teacher, parents, and employer.

Supervised Occupational Experience is planned application and development of agricultural competencies in a learning environment as closely related to the real conditions of the occupation as can be provided. The total of the student's experiences comprise a program. Year-round, long-range Supervised Occupational Experience programs are a critical factor in the development of entry-level competencies in the agricultural industry.

Supervised occupational experiences are an integral part of vocational education in agriculture. A close relationship must exist between the classroom and laboratory instruction and the occupational experiences gained by students in order to assist them in "bridging the gap" between school and successful occupational entry.

An improvement project is a series of learning activities that improves the value or appearance of the place of employment, home, school, or community . . .

SOE programs may involve ownership or placement experience, improvement projects and supplementary agricultural skills. These additional activities help students develop competencies needed for entering employment in agriculture, agribusiness, and natural resource occupations.

An improvement project is a series of learning activities that improves the value or appearance of the place of employment, home, school, or community; the efficiency of an enterprise or agribusiness; or the living conditions of the family. Supplementary

agricultural skills are jobs or practices performed to improve the student's occupational competencies. Improvement projects and agricultural skills may or may not be related to the student's ownership or placement experience.

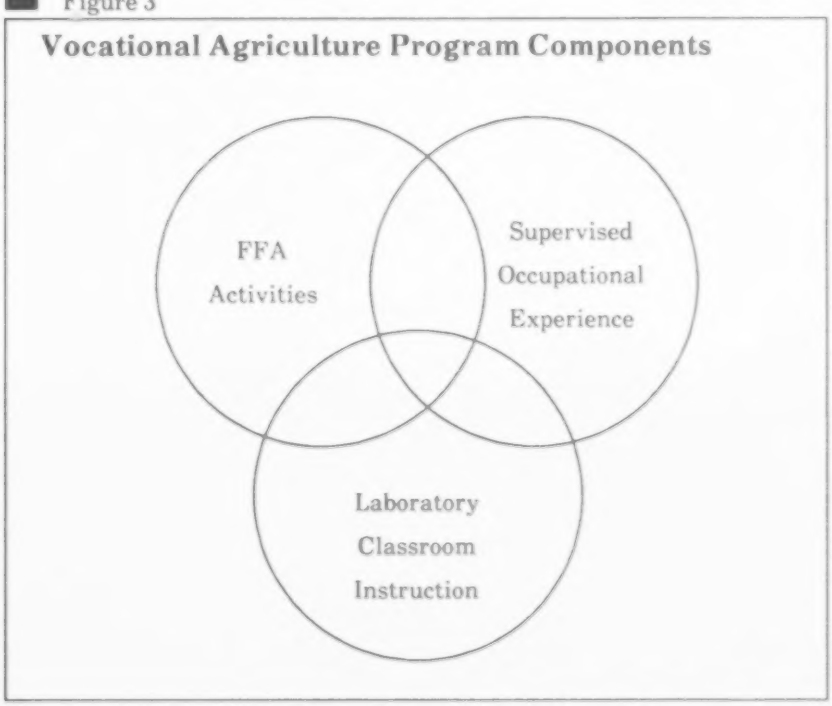
Directed lab is not an SOE but rather it is a vehicle or place for carrying out either an ownership or placement-type SOE program. It is used when students cannot have regular ownership or placement type programs.

Sometimes SOE and SOEP are used interchangeably. However, they are not necessarily the same. SOE is a term used to describe a learning process used in vocational agriculture whereby community resources are utilized. SOEP is the specific learning experiences or program planned for and conducted by an individual vocational agriculture student.*

. . . a complete agriculture education program includes each component . . .

Figure 3, taken from the *Supervised Occupational Experience Handbook*, summarizes the three major components of a secondary agriculture program. It suggests that a complete agriculture education program includes each component, that they all fit together in harmony, and that one component is incomplete without the others.

Figure 3



*Robert Seefeldt, et al., *Supervised Occupational Experience Handbook* (Alexandria, VA: National FFA Foundation, 1982).

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Resources and References

5

Professional Associations
Professional Development
Instructional Resources
References

Professional Associations

. . . Wisconsin teachers of agriculture education participate in professional vocational organizations.

Teachers of agriculture and the programs for which they are responsible have benefited from strong professional associations. In addition to the local teachers' association and its affiliates, Wisconsin teachers of agriculture education participate in professional vocational organizations.

American Vocational Association (AVA)
1410 King Street
Alexandria, VA 22314

National Vocational Agriculture Teachers Association (NVATA)
P.O. Box 15051
Alexandria, VA 22309

Wisconsin Association of Vocational Agriculture Instructors (WAVAI)
313 Price Place—Suite 112
Madison, WI 53705

Wisconsin Vocational Association (WVA)
313 Price Place—Suite 112
Madison, WI 53705

WVA and AVA are committed to promoting and developing vocational education and to providing professional and leadership services. These same functions are accomplished specifically for agricultural education through the programs and activities of the WAVAI and NVATA. Workshops, conferences, and conventions at the state, regional, and national levels provide members opportunities to participate in such areas as professional leadership and service, public relations and communications, and governmental relations and legislative involvement. Strong ties are developed and maintained with representatives of the agricultural business community to ensure the legitimacy of educational efforts. The activities of the WAVAI are directed through a network of more than 30 committees. Two of these are the secondary and postsecondary curriculum committees. All curriculum efforts for education in agriculture in Wisconsin benefit from the active involvement of one or both of these committees.

Professional Development

All agriculture educators are encouraged to continually strive for self-improvement and professional development . . .

The professional teacher of agriculture in Wisconsin schools adheres to a set of standards that have acceptance and support throughout the profession. All agriculture educators are encouraged to continually strive for self-improvement and professional development through active involvement in the programs and activities of their professional organizations. A checklist of professional characteristics for instructors in agriculture is included in Chart 4. Professional development activities are encouraged. Attendance at sectional inservice conferences, leadership workshops, and the DPI/WAVAI summer conferences should be a priority.

Professional Checklist for Instructors of Agriculture

Directions: Check those statements that apply.

A. Professional Development

1. I attended the DPI summer conference on vocational education. ☐
2. I attended the WAVAI summer conference this year. ☐
3. I attended the DPI/WAVAI fall sectional inservice conference for instructors in agriculture this year. ☐
4. I attended the DPI/WAVAI spring sectional inservice conference for instructors in agriculture this year. ☐
5. I participated in at least one agricultural inservice training workshop or class this year. ☐
6. I attended at least one regional or national convention within the past three years that was sponsored by one of the professional organizations. ☐

B. Professional Memberships

1. I am a member of WAVAI. ☐
2. I am a member of NVATA. ☐
3. I am a member of WVA. ☐
4. I am a member of AVA. ☐
5. I am a member of the FFA Alumni. ☐
6. I completed the following activities within the past year: ☐
   a) participated in a statewide professional association committee. ☐
   b) met requirements for the Thirty Minute Award. ☐
   c) completed appropriate award application for WAVAI, NVATA, WVA, or AVA. ☐
   d) participated in sectional, state, regional, and/or national leadership activities. ☐

C. Professional Appearance

1. I always set a good example for my students by my personal appearance. ☐
2. I wear appropriate professional attire to school and other official events. ☐

D. Professional Behavior

1. I am aware of state and national legislative issues directly affecting vocational education and agriculture education. ☐
2. I regularly contact my state and federal representatives regarding vocational education and agriculture education legislation. ☐
3. During professional conventions and meetings, I attend all sessions and events that are scheduled. ☐
4. I spend my preparation time in my office, classroom, or laboratory rather than the teacher's lounge. ☐
5. I maintain my office, classroom, and laboratory in an orderly and professional manner. ☐
6. I regularly read professional and agricultural literature and maintain orderly reference collections. ☐

E. Professional Relationships

1. I regularly meet with each student to provide assistance with their Supervised Occupational Experience (SOE) program. ☐
2. I actively promote the education in agriculture program and recruitment of students. ☐
3. I am an FFA and WJDA advisor and encourage active membership of all agriculture students. ☐
4. I am sincerely interested in my students and assist them with classroom work, FFA and WJDA activities, and SOE program involvement. ☐
5. I am willing to attend department and faculty meetings and assume my share of responsibilities. ☐
6. I attend athletic, dramatic, agricultural, and other related events to express my interest in my students' activities. ☐
7. I have served on an evaluation team for another district. ☐
8. I have an active FFA Alumni affiliate and advisory committee which meet regularly. ☐
9. I support the Wisconsin and National FFA Foundations. ☐
10. I am proud to be an instructor in agriculture and make every effort to represent my discipline in a professional manner. ☐

A variety of sources are available to provide information and teaching materials for education in agriculture programs. The major ones are listed here.

Source	Books	Curriculum Guides	Supplies	Software	Visual Aids, Films, Transparencies, Slides	Bulletins, Teaching Units
A & L Publications Station A, Box F Champaign, IL 61820	•					
Agricultural Computer Services 21004 South Mollalla Avenue P.O. Box 5034 Oregon City, OR 97045				•		
Agricultural Resource Management Division Plant Industry Bureau 801 West Badger Road P.O. Box 8911 Madison, WI 53708	•		•	•	•	•
Agri-Data Resources Inc. 330 East Kilbourn Avenue Milwaukee, WI 53202				•		•
Agri-Farm Publications, Inc. 1019 Market Street Box 43 Gowrie, IA 50543	•			•		•
American Association for Vocational Instructional Materials 120 Driftmier Engineering Center Athens, GA 30602	•	•		•	•	
American Forestry Association 919 17th Street, N.W. Washington, DC 20006	•				•	•
American Oil Company 910 South Michigan Avenue Chicago, IL 60680	•			•	•	•
American Poultry and Hatchery Foundation 521 East 63rd Street Kansas City, MO 64110						•

Source	Books	Curriculum Guides	Supplies	Software	Visual Aids, Films, Transparencies, Slides	Bulletins, Teaching Units
American Technical Society 5608 Stony Island Avenue Chicago, IL 60637					•	•
American Vocational Association 1410 King Street Alexandria, VA 22314					•	•
Arco Publishing Company 219 Park Avenue South New York, NY 10003	•					
Association Sterling 512 Burlington Avenue LaGrange, IL 60525	•					•
Avi Publishing Company 250 Post Road East, Box 831 Westport, CT 06881	•					•
Babson Brothers Dairy Research Service 2100 South York Road Oak Brook, IL 60521	•		•	•	•	•
A. S. Barnes and Company, Inc. Canbury, NJ 08512	•					•
William C. Brown Company, Publishers 135 South Locust Street Dubuque, IA 52001	•					
Bruce Publishing Company 400 North Broadway Milwaukee, WI 53201	•					
Bureau of Audio-Visual Instruction (BAVI) *First Class Mail* P.O. Box 2093 Madison, WI 53701-2093 *Film Return* 1327 University Avenue Madison, WI 53715-2499					•	
Caxton Printers, Ltd. 312 Main Street Box 700 Caldwell, ID 83605	•					•

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Wisconsin Assoc. of Vocational Agriculture Instructors 2117 Sherman Avenue Madison, WI 53704		•	•			
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Wisconsin State FFA Executive Secretary Department of Public Instruction P.O. Box 7841 Madison, WI 53707	•	•	•			•

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"One room that is never overfilled . . . is the room for improvement."
—Ruth MacKay

Appendixes

6

A. Sex Equity in Agriculture Education
B. Reaching Special Needs Students
C. Sample Unit Evaluation Form

Appendix A

Sex Equity in Agriculture Education*

The term "sex equity" describes an environment in which individuals consider options and make choices based on their abilities and talents, not on the basis of stereotypes and biased expectations. It brings about freedom from favoritism based on sex. The achievement of sex equity enables both women and men of all races and ethnic backgrounds to develop skills needed in the home *and* in the paid work force, skills which are best suited to an individual's interests and abilities. It opens economic, social, and political opportunities for all people. It fosters mutual trust because people of both sexes are unrestricted in their roles.

Historical Background

During the last 20 years, efforts have been made to increase educational opportunity and eliminate discrimination. There is recognition of the deep-rooted and enduring social and economic changes that have occurred during this period. These changes require vocational educators to broaden their perception of the educational needs of male and female students of all races and various mental and physical abilities so that these students are better prepared to survive and thrive in a society characterized by changing conditions and expectations.

Educational equity as a specialized field of knowledge is in its infancy in terms of methodology and practice. Federal and state governments have seen the need for legislation to expand educational opportunities and to improve economic self-sufficiency for all people through changes in the educational system. The focus of early equity efforts centered on removing the overt barriers to equal access, treatment, and educational opportunity.

While compliance with nondiscrimination laws and removal of overt barriers to all courses of study and to all occupations are necessary, they are not sufficient to create an environment promoting educational equity and supporting expanded choices. Role stereotyping, bias, and lack of information about the impact of large social and economic trends perpetuate old patterns and old ways of thinking, feeling, behaving, and preparing for the future.

Traditionally, agriculture education has been linked to teaching the skills used in production agriculture and agribusiness occupations. These jobs currently and historically are dominated by males. As a result, agriculture education courses are perceived by females and males as predominantly a male domain.

Enrollment statistics reflect the following:

- Overall agriculture education Instructional Program Component (IPC) course enrollment is 86 percent male and 14 percent female.
- Overall agriculture education Occupational Preparation Component (OPC) course enrollment is 82 percent male and 18 percent female.

*Prepared by Barbara A. Bitters, Administrator, Vocational Equity and Single-Parent Programs, Wisconsin Department of Public Instruction, 1988.

- Just a few more females elect agriculture education courses (OPC) than are willing to declare an occupational goal and prepare for it. Therefore, the trend will remain for few young women to enroll at the IPC level.
- Of all the female students electing vocational education courses, 3.9 percent of IPC students and 2.9 percent of all OPC students are in agriculture education.
- Of all male students electing vocational education courses, 20.3 percent of all IPC students and 8.5 percent of all OPC students are in agriculture education.
- Disproportionate male enrollment appears in all agriculture education IPCs except Animal Science and Ornamental Horticulture (see Chart A-3).
- Disproportionate male enrollment appears in all agriculture education courses except Animal Science and Ornamental Horticulture (see Chart A-1).

These enrollment figures reflect, as well as perpetuate, gender stereotyping associated with agriculture and agribusiness occupations and segregation on the basis of sex in our current work force. Enrollment trends which indicate 80 percent or more enrollment by one sex are considered an indication of sex-role stereotyping, bias, or possible discrimination. These statistics may indicate that females either see little value in learning skills taught in agriculture education, or they are not aware of what is being taught and how it might benefit them in the future. Reducing enrollment segregation and occupational stereotyping should be one of the goals of agriculture educators.

Achieving Equity through the Curriculum

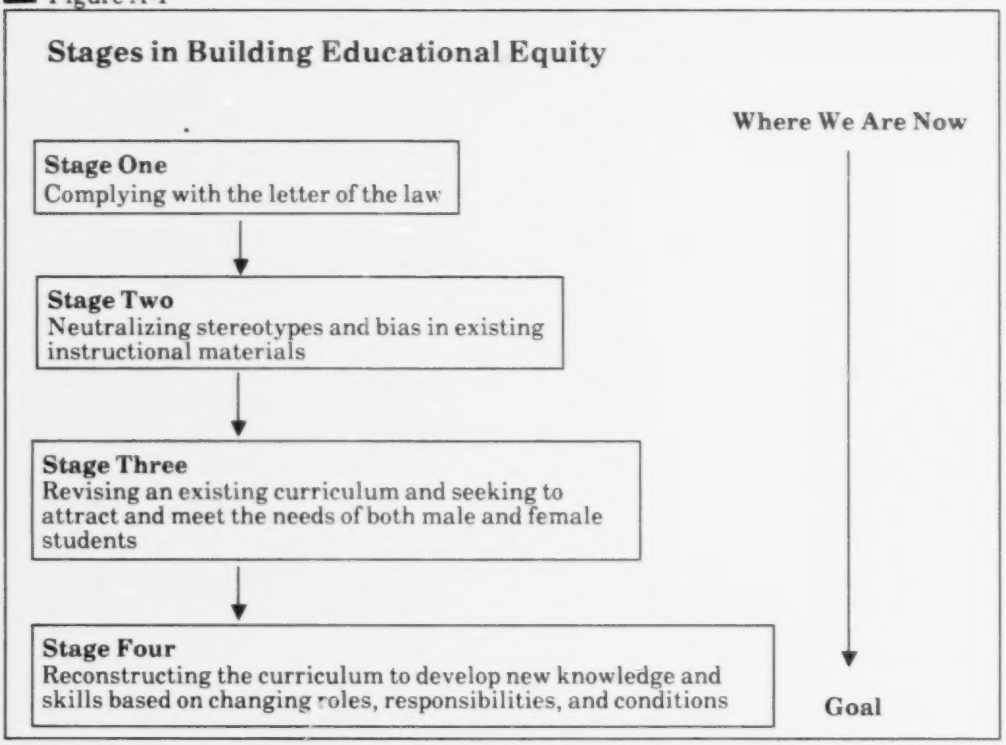
In order for agriculture educators to develop a curriculum free of sex discrimination, they must be able to recognize sex bias and sex-role stereotyping in curriculum materials and in the classroom. Agriculture educators must devote consistent and informed attention to the goals of equity and how those goals can be achieved throughout the core of the teaching process: the learning environment, teacher-student interaction patterns, and the curriculum. The charts and checklists at the end of this section will provide agriculture educators with the basic resources to plan and develop an equitable curriculum.

Strategies for achieving equity through the curriculum have evolved over the last ten years. In the 1970s, the "checklist approach" was designed to address the goal of nondiscrimination. Currently, more sophisticated strategies are needed to weave equity into the fiber of each vocational course. The idea of student equity-related competencies as an integral part of curriculum objectives is new. Still, at the present time, all strategies are needed to achieve equity in agriculture education. All educators must take active steps to include equity-related concepts and skills in the curriculum at each stage of its development.

There are at least four stages that educators must consider when attempting to ensure that a particular curriculum supports the goals of educational equity, as illustrated in Figure A-1.

Stage One: Complying with the Letter of the Law. At this stage, the policies and practices of the entire school district and each staff member must be reviewed. Federal and state laws prohibit discrimination in admission to any course or activity and prohibit separate courses for students on the basis of sex, race, or handicap. Course descriptions, counselor practices, the effect of prerequisites on enrollments, how the master schedule stifles or encourages nontraditional exploration, and many other access-related issues should be investigated and changed as needed.

Figure A-1


Stages in Building Educational Equity
Where We Are Now
Stage One
Complying with the letter of the law
Stage Two
Neutralizing stereotypes and bias in existing instructional materials
Stage Three
Revising an existing curriculum and seeking to attract and meet the needs of both male and female students
Stage Four
Reconstructing the curriculum to develop new knowledge and skills based on changing roles, responsibilities, and conditions
Goal

Stage Two: Neutralizing Stereotypes and Bias in Existing Instructional Materials. In stage two, educators must review instructional materials, language usage, course objectives and activities, and FFA activities to determine if they are based on, rely on, or communicate stereotypes or traditional biases that "attribute behaviors, abilities, interests, values, and roles to a person or group of persons on the basis of sex, race, national origin, ancestry, creed, pregnancy, marital or parental status, sexual orientation, or physical, mental, emotional, or learning disability." (This definition of stereotyping comes from PI 9, Wisconsin Administrative Code, on pupil nondiscrimination.)

Stage Three: Revising an Existing Curriculum and Seeking to Attract and Meet the Needs of Both Male and Female Students. At this stage, educators should revise or supplement the curriculum to identify and meet the interests and needs of students who traditionally have not enrolled in a particular course. In the case of agriculture education courses, this is almost always females.

In reaching out to the nontraditional student, a troublesome paradox occurs. In order to attract a nontraditional student, educators need to appeal to the students' interests, which are frequently based on stereotypes and biases. This could reinforce and perpetuate the very stereotypes and biases that should be neutralized. For example, enrollment patterns show certain courses are perceived as more interesting for females, such as ornamental horticulture or animal science. Female participation in only a few agriculture courses, while encouraging from an equity point of view, may perpetuate old stereotypes and assumptions that other courses or skills are less interesting or less important and valuable, or "just for boys."

Specific strategies educators use in this phase include the following:

- using recruitment strategies aimed specifically at females, which increase their knowledge of agriculture and related occupations, opportunities, and skills;
- providing female role models in a variety of agriculture- and agribusiness-related occupations from entry-level to advanced positions;
- reviewing and changing the classroom environment to eliminate "male-only" images and promote messages that encourage female participation;
- supplementing the curriculum by addressing the changing roles of females and males in agriculture and agribusiness; and
- examining and neutralizing the forms of sex bias, especially communication/linguistic bias, by both teachers and students.

Stage Four: Reconstructing the Curriculum to Develop New Knowledge and Skills Based on Changing Roles, Responsibilities, and Conditions. This stage represents a conceptual shift or redefinition of each course, accomplished by including new instructional objectives and activities that embrace equity concepts and goals for both female and male students. Equity ideas and issues must be central to the reconstruction of the agriculture education curriculum described in this guide. While some courses outlined in this guide lend themselves more directly to discussing equity ideas, the entire program and curriculum must embrace and support new equity-related knowledge and skills.

Research on gender differences and similarities, on females, on males, on changing roles, and on equity has been conducted in the last 15 years. There is a growing body of literature on women as business leaders and entrepreneurs and on women in nontraditional jobs and careers. Students can benefit from exposure to and critical thinking about emerging agriculture issues created by changing social and economic conditions. These issues include

- the effects of sex-role stereotyping, bias, and discrimination (including sexual harassment) on individuals and on agriculture and agribusiness;
- changing roles of females and males in the world of work;
- comparable worth or value and wage equity or inequity associated with different jobs;
- emerging employee job benefits, such as employer-sponsored child care, child-bearing and child-rearing leave for males as well as females, and company transfer policies for two-wage-earner families;
- flex-time and job-sharing possibilities;
- the need for and results of affirmative action programs; and
- the impact of technology on various jobs and work procedures.

There are no actual models of the reconstructed curriculum proposed here on which to draw. Each agriculture educator will need to carefully examine the underlying assumptions of the current and projected curriculum. Some of the questions educators need to be concerned with include the following:

- Has the new body of knowledge on changing roles and gender-role stereotyping been incorporated into the agriculture education curriculum?
- Will the curriculum give students skills for the future, or will it establish expectations for the gender and occupational roles and responsibilities of a bygone era?
- Do instructional objectives facilitate critical thinking about the effect of major social and economic changes on the individual, the family, and agriculture/agribusiness?
- Will both female and male students truly be prepared for the dual roles of work of the family and work in the paid labor force?

- Will both female and male students have a greater respect for traditional "women's work"?
- Will both female and male students be prepared for the work partnerships of the future work world?
- Can trust be built between the sexes that will lead to greater teamwork and productivity?
- Will the new curriculum lead to greater understanding and appreciation of both women's and men's experiences, needs, perspectives, values, and futures in the rapidly changing world of work?

Student Equity-Related Competencies for Economic Self-Sufficiency and Equal Employment Opportunity

Student equity-related competencies are critical for the curriculum reconstruction described in the fourth stage of equity implementation. Such competencies are consistent with program improvement initiatives in vocational education and with the youth employment competencies established by Private Industry Councils (PIC) for Job Training Partnership Act (JTPA) programs.

Agriculture educators should review the equity-related competencies and consider how one or more might be included in courses and programs.

- General
  - —Students will define and identify strategies to overcome role stereotyping, bias, and discrimination on the basis of race, sex, and handicapping conditions.
  - —Students will be able to define and give examples of "dual discrimination."
  - —Students will identify and analyze societal attitudes about men and women, sex-role stereotypes and bias, and forms of sex discrimination.
  - —Students will be able to recognize and neutralize role stereotyping and bias in educational materials.
  - —Students will demonstrate the use of sex-fair/ inclusive language.
  - —Students will develop a positive attitude about the abilities of both sexes, all racial and ethnic groups, and the handicapped.
- Work and family
  - —Students will identify the responsibilities associated with dual work roles—paid work and work in the home and family.
  - —Both male and female students will identify changes in family structure and responsibilities and the need to develop complex family-related skills.
- Labor force facts
  - —Students will demonstrate knowledge of historical changes in the labor force participation of males and females.
  - —Students will identify historical barriers to equal employment opportunity.
  - —Students will demonstrate knowledge that both men and women work for pay, in great numbers, for a long time, and out of economic necessity.
  - —Students will identify how role stereotyping, bias, and discrimination have contributed to occupational segregation in the U. S. labor market.
  - —Students will demonstrate knowledge of how traditional women's work has been undervalued and underpaid.
- Nontraditional occupations
  - —Students will be able to define "nontraditional occupations" and will identify positive and negative aspects of employment in nontraditional careers.

— Students will identify nontraditional jobs for females and males and the skills needed for those jobs.
— Students will identify some of the issues that arise when women or men work in nontraditional jobs.
— Students will identify coping strategies to survive and thrive in nontraditional jobs.

- Career development
  — Students will identify how sex-role stereotyping and bias may limit opportunities in planning their own future.
  — Male and female students will demonstrate awareness of the total range of career and occupational choices.
  — Students will formulate career development plans based on informed choice, labor market information, assessment of interests and skills, occupational exploration, and work experience, rather than on factors related to occupational stereotyping on the basis of sex, race, or handicapping conditions.
  — Both male and female students will identify how emerging technology is influencing jobs of the future.
  — Both male and female students will demonstrate experience in preparing for, adapting to, and influencing change in the work world.
  — Students will identify reasons why both males and females should acquire mathematics, science, computer, and technology skills.
  — Students will identify how sex stereotyping, bias, and discrimination may affect career planning, occupational exploration and preparation, employability and job seeking, job retention and advancement, job benefits and professional development, earnings, financial planning and management, and entrepreneurship.
  — Students will identify and discuss employment skills that both males and females will need to survive and thrive in the future economy, including skills in participative management, oral and written communication, assertiveness, teamwork, networking, cooperation, negotiation, flexibility, adapting, human relations, interpersonal relations, leadership, changing careers, coping with frequent and rapid change, and technological literacy.

The information and the checklists that follow are designed to help agriculture educators continue this task of examining curriculum, adjusting teaching practices, and achieving equity goals.

Forms of Bias in Curricular Materials and Classrooms

Six forms of bias are likely to be prevalent in curriculum materials, the classroom environment, and interactions.

Invisibility. Certain groups have been underrepresented in curriculum materials. The significant omission of women and minorities implies that they are of less value, importance, and significance in society. Females have formed "quiet" behavior patterns compared to the "active" role of males in the classroom. Teachers interact far more frequently with males; they reward males for academic work, punish them, talk to them, question them, and remember them in later years far more often than females. This invisibility has been underscored by discussion topics and by bulletin boards and displays that frequently omit skills of women and minorities

Stereotyping. By assigning traditional and rigid roles or attributes to a group, instructional materials stereotype and limit the abilities and potential of that group. Stereotyping denies students knowledge of the diversity, complexity, and variation of any group of individuals.

Students who see themselves portrayed stereotypically may internalize these stereotypes and fail to develop their own unique abilities, interests, and full potential. Often, teachers have assumed that males share one set of abilities, interests, values, and roles, and females share a different set of these characteristics. These stereotyped expectations ignore individual differences, affect the teacher's behavior, and limit the full development of female and male students. Teachers often reward only males for active, assertive, dependable, and considerate behavior. When these stereotyped teacher expectations are reinforced by stereotyped models, pictures, and other displays, students receive additional messages of "appropriate" sex-role behavior. As a result, many students learn to limit their careers and capabilities in order to fit these stereotyped roles.

Imbalance/Selectivity. Textbooks perpetuate bias by presenting only one interpretation of an issue, situation, or group of people. An imbalanced account restricts students' knowledge of the varied perspectives that may apply to a situation.

Through selective presentations of materials, textbooks distort reality and ignore complex and differing viewpoints. As a result, millions of students may be presented limited perspectives on the contributions, struggles, and participation of females and minorities in our society.

The educational system has reflected an imbalance in compensatory educational programs. Special education programs have alleviated learning problems that tend to affect males but have generally ignored those that hamper females. Although there are special education programs for reading and emotional learning problems, there are few special programs in spatial relations and mathematics. Compensatory education programs have reflected a sex bias in selecting the types of learning problems to be recognized and remedied, and this imbalance has worked to the disadvantage of females.

Unreality. Frequently, textbooks present an unrealistic portrayal of history and contemporary life. They gloss over controversial topics and avoid discussions of discrimination and prejudice. Unrealistic coverage denies students the information needed to recognize, understand, and perhaps eliminate the problems that plague society. In spite of the many sources of sex bias in classroom interaction, most teachers and teacher educators are unaware of their roles in promoting educational inequality. To overcome this bias, educators need to be aware of their own patterns as they provide response opportunities, offer feedback, and interact on an informal level with personal regard for all others.

Fragmentation/Isolation. By separating issues related to minorities and women from the main body of the text, instructional materials imply that these issues are less important and not a part of the cultural mainstream. By arbitrarily separating females and males in classroom procedures—such as lining up, forming work groups, and organizing recreational activities—teachers promote the fragmentation and artificial isolation of the sexes. Purposeless separation is a divisive influence and works against the goal of sexual equality. When represented in the physical environment of the classroom, on bulletin boards, and in other displays, the roles and contributions of women have been presented separately and secondly as though the female role is only a corollary to the mainstream of human experience.

Linguistic Bias. Curriculum materials often reflect the discriminatory nature of the language. Masculine terms and pronouns ranging from "our forefathers" to the generic "he" deny women's participation in our society. Occupations are given masculine labels, such as "mailman," denying the presence of women workers in these fields. Imbalance of word order and lack of parallel terms referring to females and males are also forms of linguistic bias. The same forms of language bias present in instructional materials may also emerge in the language of the classroom. Sex-biased words, such as "mankind" and "salesman," and the constant reliance on the male pronoun "he" to refer to both males and females are examples of sexist language patterns that belittle the role and importance of females. As in the other cases of bias, physical displays in the classroom may also reflect biased language.

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Chart A-1
Agriculture Education Course Enrollments

Grades 9-12, 1984-85

Course Composition by Sex

Course	Males		Females		Total
	Number	Percent	Number	Percent	
Agricultural Business Management	3,105	87	471	13	3,576
Agricultural Mechanics	3,178	91	328	9	3,506
Agricultural Mechanics (Shop)	4,277	92	370	8	4,647
Agricultural Products/Processing	1,469	85	254	15	1,723
Agricultural Resources (Soils and Conservation)	3,460	84	665	16	4,125
Agricultural Supplies/ Services	1,607	86	271	14	1,878
Animal Science	5,241	80	1,296	20	6,537
Forestry	1,371	84	268	16	1,639
General Agriculture	4,689	84	902	16	5,591
Ornamental Horticulture	1,363	71	570	29	1,933
Plant Science	3,220	83	673	17	3,893
Totals	32,980	84	6,068	16	39,048

Based on the Wisconsin Department of Public Instruction's 1984-85 Statewide Curriculum Survey; compiled March 1987.

Chart A-2
Agriculture Education Course Enrollments

Grades 9-12, 1984-85

Percent of Female Enrollment By Course—Highest to Lowest

Course	Percent
Ornamental Horticulture	29
Animal Science	20
Plant Science	17
Agricultural Resources (Soils and Conservation)	16
Forestry	16
General Agriculture	16
Agricultural Products/Processing	15
Agricultural Supplies/Services	14
Agricultural Business Management	13
Agricultural Mechanics	9
Agricultural Mechanics (Shop)	8

Based on the Wisconsin Department of Public Instruction's 1984-85 Statewide Curriculum Survey; compiled March 1987.

Chart A-3
VEDS IPC* 1984-85 Enrollment Data

Course	Males		Females		Total
	Number	Percent	Number	Percent	
Agricultural Mechanics	191	92	17	8	208
Agricultural Production	1,478	87	212	13	1,690
Agricultural Products	18	90	2	10	20
Agricultural Resources (Conservation, Utilization, and Services)	78	90	9	10	87
Agricultural Supplies/ Services	140	79	37	21	177
Forestry	47	98	1	2	48
Ornamental Horticulture	32	43	42	57	74
Other Agriculture Occupations	2	67	1	33	3
Totals	1,986	86	321	14	2,307

Based on the Wisconsin Department of Public Instruction's 1984-85 Statewide Curriculum Survey; compiled March 1987.

*Instructional Program Component—these figures represent advanced students with a professed career goal in these areas.

Chart A-4
FFA Membership

Composition by Sex

Year	Males		Females		Total
	Number	Percent	Number	Percent	
1971*	18,949	98	445	2	19,394
1975	18,583	92	1,659	8	20,242
1980	17,391	87	2,654	13	20,045
1985	14,877	85	2,634	15	17,511
1987	13,522	83	2,820	17	16,342

Based on data from the Department of Public Instruction's Vocational Agriculture/Agribusiness Annual Descriptive Reports; compiled April 1988.

*FFA voted to allow female membership in 1969. 1971 is the first year membership data was collected by sex.

Chart A-5
Profile of an Equitable Classroom*

Physical Environment	
Ideal	The teacher visually portrays females and males in both traditional and nontraditional roles and includes representatives of various races and cultures in pictorial displays.
Acceptable	The teacher provides neutral images in pictorial displays.
Unacceptable	The teacher visually portrays people only in roles traditional for their race, sex, or culture. The teacher portrays only one sex, race, or culture in visual displays. The teacher's visual displays portray sex, race, or ethnic stereotypes.
Curriculum	
Ideal	The teacher's classroom activities are multicultural and sex-fair. The teacher includes classroom lessons to increase awareness and counter past effects of bias and discrimination.
Acceptable	The teacher's classroom activities are multicultural and sex-fair.
Unacceptable	The teacher does not include the contributions of women or minorities. The teacher presents stereotyped views of groups of people.
Language	
Ideal	The teacher uses inclusionary terms for people in all written and oral communication. The teacher works with students to help them develop inclusionary language forms and encourages all students to use those terms in their own communications. The teacher discusses the negative impact of using derogatory terms in reference to race, sex, or ethnic groups.
Acceptable	The teacher uses inclusionary terms for people in all written and oral communication.
Unacceptable	The teacher uses derogatory terms in reference to any race, sex, or ethnic group. The teacher repeatedly uses sex-limited language. The teacher repeatedly mispronounces any student's name. The teacher allows students to use derogatory terms in reference to any race, sex, or ethnic group.

*Adapted from Leslie F. Hergert and Raymond M. Rose, *Profile of an Equitable Classroom* (Andover, MA: The NETWORK, Inc., 1984). Reprinted with permission.

Active Teacher Attention	
Ideal	The teacher provides the same amount of teaching attention to all students, with individual differences based on their need and style. The teacher directs classroom discussion to allow all students to participate.
Unacceptable	The teacher provides students with different amounts of attention based on their race, sex, or national origin. The teacher allows a student or group of students to dominate the class.
Behavior Management	
Ideal	The teacher informs students in advance of acceptable and unacceptable behavior and the consequences of their behavior. The teacher reprimands all students equally for infractions of classroom or school rules. The teacher praises all students equally for good behavior.
Unacceptable	The teacher reprimands students differently for behavioral infractions based on their race, sex, or national origin. The teacher attributes stereotyped characteristics to a sex, race, or national origin group.
Academic Evaluation	
Ideal	The teacher praises students for the intellectual quality of their work—regardless of their race, sex, or national origin—from a set of criteria that has been announced to the students. The teacher analyzes interactions with students for differential patterns and takes actions to counteract and balance differences.
Unacceptable	The teacher uses a different set of criteria for evaluating the academic work of students based on their race, sex, or national origin. The teacher evaluates females and males differently for the same performance.

Chart A-5
Profile of an Equitable Classroom (cont.)

Classroom Integration	
Ideal	The teacher promotes cooperation and integration of students through activities that help students of different sexes, races, and ethnic groups to work together more effectively. The teacher structures classroom activities to develop and exercise leadership skills among a variety of students.
Acceptable	The teacher assigns classroom seating patterns, project groups, and other structured activities to integrate students by race, sex, and ethnic group.
Unacceptable	The teacher groups students for any activity by race, sex, or ethnicity. The teacher allows segregated patterns to exist by allowing students to group themselves. The teacher assigns classroom tasks on the basis of a student's race, sex, or ethnicity. The teacher structures classroom tasks to encourage competition among different sexes, races, or ethnic groups.

Checklist A-1
Equity Standards for Agriculture Education*

	Yes	No
Philosophy		
1. The philosophy identifies the needs, abilities, and interests of all learners, regardless of race, sex, creed, national origin, or handicapping conditions.	☐	☐
Student Populations Served		
2. Females, as well as males, are encouraged to enroll in agriculture education courses.	☐	☐
3. Agriculture education activities are provided for all students on a sex-fair basis.	☐	☐
Instructional Staff		
4. The agriculture education teacher is prepared, through preservice/inservice education, to eliminate sex bias and sex-role stereotyping.	☐	☐
Administration and Supervision		
5. Demographic data about all agriculture education students are available by grade level and by course, including but not limited to course enrollments by racial and ethnic categories, by sex, and by type and number of students with special needs.	☐	☐
Support System		
6. An agriculture education advisory committee is established that has representation of both sexes and of the racial and ethnic minorities found in the program areas, schools, community, or region that the local advisory committee serves.	☐	☐
7. Lavatory facilities for both sexes are provided near or in the agriculture education laboratory/classroom.	☐	☐
8. Books and other instructional materials contain sex-fair language and images and provide a wide range of role options.	☐	☐
Instructional Strategies		
9. Instructional methods utilized are based upon individual student needs rather than upon sex of the students.	☐	☐

*Adapted from Wisconsin Department of Public Instruction, *Sex Equity Guide for Technology Education Programs* (Madison, WI: Department of Public Instruction, 1982); and W.E. Dugger, et al., *Report of Survey Data: Standards for Industrial Arts Programs* (Blacksburg, VA: Virginia Polytechnic Institute and State University, 1981).

Checklist A-2
Sex Equity Self-Assessment*

Directions: Complete this checklist and consider specific areas for improvement.

	Always	Often	Some-times	Never	N/A**
Expectations. I expect the same achievement and behavior from males and females.	☐	☐	☐	☐	☐
Duties. I assign females and males duties and responsibilities on the basis of ability rather than sex.	☐	☐	☐	☐	☐
Language. I use nonsexist language; for example, I do not refer to all employers or farmers as "he" or all administrative assistants or bookkeepers as "she."	☐	☐	☐	☐	☐
Attitude. I take the idea of equality seriously; I do not "put down" males or females or joke about their abilities, roles, or ethnic backgrounds.	☐	☐	☐	☐	☐
Environment. All bulletin boards and visual materials are nonsexist and nonracist, showing women and men in a variety of roles that reflect the many interests of females and males.	☐	☐	☐	☐	☐
Curriculum. I ensure that the curriculum is nonsexist; for example, I plan a curriculum that					
• addresses the needs and interests of both females and males.	☐	☐	☐	☐	☐
• recognizes the historical and current contributions of both sexes.	☐	☐	☐	☐	☐
• provides for the equal treatment of both sexes in all courses.	☐	☐	☐	☐	☐
• helps males and females explore the wide range of roles and career options available.	☐	☐	☐	☐	☐

*Adapted from Marilyn Calabrese, *Becoming Sex Fair: The Tredyffrin/Easttown Program* (Newton, MA: WEEA Publishing Center).

**N/A = Not Applicable

Checklist A-3
Sex Equity in Curriculum Materials

Directions: Use this checklist to determine the degree to which sex bias is present in curriculum materials. These questions apply to the language and visuals used in both print and nonprint materials. If you answer "no" in any category, the material is biased; you should replace the material if possible or develop handouts to supplement the material and discuss it with your students. Before purchasing new material, use this checklist to determine the appropriateness of the purchase.

		Yes	No	N/A*
1.	Are occupations shown as open to all?	☐	☐	☐
2.	Are sex-free titles used, as indicated in the current *Dictionary of Occupational Titles*?	☐	☐	☐
3.	Are females and males depicted in occupations currently dominated by the other sex (nontraditional occupations)?	☐	☐	☐
4.	Are females and males portrayed in both active and passive roles throughout in approximately the same numbers?	☐	☐	☐
5.	Are various races and ethnic groups presented throughout in a balanced or representative fashion?	☐	☐	☐
6.	Are females and males shown to have all human traits?	☐	☐	☐
7.	Do females and males appear in approximately the same number throughout the materials?	☐	☐	☐
8.	Are females and males pictured performing a variety of home tasks that are not necessarily traditional for their sex?	☐	☐	☐
9.	Are gender-free, plural pronouns used ("they, their")? Is there an equal balance of gender-specific, singular pronouns ("she, he")? Are gender-free nouns substituted for gender-specific pronouns ("student" for "she/he" or "her/him")?	☐	☐	☐
10.	Are both minority and nonminority females and males pictured equally in varied levels of occupational status and responsibility?	☐	☐	☐
11.	Do illustrations of people include a variety of body types along with evidence of handicaps/disabilities?	☐	☐	☐

*N/A = Not Applicable

Checklist A-3
Sex Equity in Curriculum Materials (cont.)

		Yes	No	N/A*
12.	Is written reference made to physical appearance only when there is a purpose for the reference?	☐	☐	☐
13.	After reviewing this material, do you come away with a sense that females and males of various ethnic and racial backgrounds, some with handicaps, are involved in a variety of occupations, with a variety of responsibilities, and that opportunities are not limited on the basis of gender, race, or handicaps?	☐	☐	☐
14.	Comments/recommendations.			

*N/A = Not Applicable

Checklist A-4
Evaluation of a Sex-Fair Classroom Setting*

Directions: Research has shown nonverbal messages carry a stronger impact than verbal messages. Such things as recruitment methods, teacher behaviors, and visuals used to support instruction tell students how they are valued in a class or program. Use this checklist to assess the degree to which your classroom setting promotes sex equity.

		Yes	No
1.	Do units of instruction and activities currently include both sexes?	☐	☐
2.	Are teaching materials and handouts free of sex bias and sex-role stereotyping?	☐	☐
3.	Are teaching methods free of sex bias?	☐	☐
4.	Are students of both sexes actively encouraged to enroll?	☐	☐
5.	Do teaching examples relate to both sexes?	☐	☐
6.	Are bulletin boards appropriate for students of both sexes?	☐	☐
7.	Are role models available for both sexes?	☐	☐
8.	Is nonverbal behavior free of sex bias?	☐	☐
9.	Do students have equal opportunities to do tasks?	☐	☐
10.	Do counselors and other teachers view your program as suitable for both females and males?	☐	☐

*Adapted from Donna Koppi Boben, *Guidelines for Equity Issues in Technology Education* (Reston, VA: International Technology Education Association, 1985).

Checklist A-5
Evaluation of Sex-Fair Teaching Behavior

Directions: As an agriculture education teacher, you serve as a model for students. You can significantly affect students' attitudes and behaviors. Are you satisfied with the model you present? Is that model free of sex-stereotyped behaviors?

In my teaching, I

		Always	Usually	Never
1.	provide the same course content for students of both sexes.	☐	☐	☐
2.	provide the same kind of learning activities and projects for all students rather than providing them based on gender stereotypes.	☐	☐	☐
3.	allow all students equal access to machines and equipment; the same standards of use apply to students of both sexes.	☐	☐	☐
4.	intervene when males do activities or use machines and females watch (or vice versa).	☐	☐	☐
5.	encourage all students to be equally considerate and courteous to others, instead of males being "chivalrous" and females being "ladylike."	☐	☐	☐
6.	administer the same reprimands or disciplinary actions to students of both sexes for misbehavior.	☐	☐	☐
7.	use gender-free terms and occupational titles rather than sex-specific ones ("human" or "person" instead of "mankind" or "man").	☐	☐	☐
8.	avoid stereotypic phrases such as "boys will be boys" and "girls should act like ladies."	☐	☐	☐
9.	give equal attention to students of both sexes rather than more support for females and more criticism for males.	☐	☐	☐
10.	establish the same safety and dress requirements for all students.	☐	☐	☐

		Always	Usually	Never
11.	establish and apply the same grading system to students of both sexes.	☐	☐	☐
12.	act in a way that allows or encourages both sexes to be equally capable in this course.	☐	☐	☐
13.	incorporate the topics of sex discrimination, stereotyping, and bias into regular course content and discussions whenever possible.	☐	☐	☐
14.	provide information to students about expanding occupational and family roles and responsibilities for both sexes in areas that have traditionally been considered appropriate for only one sex.	☐	☐	☐
15.	assist both female and male students in recognizing that their adult roles will probably include paid work, parenting, and homemaking.	☐	☐	☐
16.	involve students in identifying examples of sex discrimination, stereotyping, and bias in textbooks, curriculum, media, and other course-related materials, such as agriculture-related journals, job descriptions, and advertising.	☐	☐	☐
17.	help students identify sex discrimination and stereotyping in their education and personal lives and brainstorm options for dealing with these situations.	☐	☐	☐
18.	request anonymous student evaluations concerning any sex discrimination, stereotyping, or bias they may feel exists in the classroom (Do you think I favor boys over girls or treat girls or boys as if they are not capable?).	☐	☐	☐
19.	encourage students to correct me if I use sex-specific terms or sexist generalizations (telling a female she did a "man-sized" job).	☐	☐	☐

Checklist A-6
Evaluation of Sex-Fair Language Usage

Directions: Using this checklist, assess the degree to which your personal language usage is sex-fair. Also use this checklist to assess the sex-fairness of language in instructional materials.

	Yes	No
1. Are both pronouns (*she/he* and *him/her*) or plural pronouns used whenever sex is unspecified?	☐	☐
2. Do pronouns and their antecedents apply to both sexes when general references are made to careers and occupations ("A soil scientist is a skilled person. He/she is required to perform a number of tasks.")?	☐	☐
3. Are universal male terms avoided when the career or occupation is meant to include both sexes (sales *agent* instead of sales*man*, business*person* instead of business*man*)?	☐	☐
4. When referring to both sexes, are the female and male terms used alternately throughout the text (*girls and boys, he/she*)?	☐	☐
5. Do you avoid unnecessary clarification when men and women hold nontraditional jobs ("*male* secretary," "*woman* business owner")?	☐	☐
6. Are occupational titles that use "man" as the suffix avoided (chair*man*, business*man*, sales*man*)?	☐	☐
7. Are parallel terms used in referring to females and males ("Dr. Jones and Ms. Smith" versus "Dr. Jones and the secretary, Nancy")?	☐	☐
8. Are potentially demeaning labels like *girls, fair sex, chicks*, or *ladies* replaced by *women* or *females*?	☐	☐
9. Are women described in terms of their appearance or marital status, while men are described in terms of accomplishments or titles?	☐	☐
10. Are women consistently presented as either dependent on or subordinate to men?	☐	☐
11. Do materials use sex-fair language and then slip into the use of the generic *he*?	☐	☐
12. Are quotations, references, and supplemental study materials authored by women as well as men?	☐	☐

Reaching Special Needs Students

During the last two decades, there has been an increasing awareness of the need for disadvantaged and handicapped students, or special needs students, to participate in regular vocational education programs. These special needs students may have a great need for vocational education. Although opportunities are expanding, few students in this category continue their education beyond twelfth grade, and many who do not get the help they need drop out of school. These students need to master as many job competencies as possible, for the need to work is a universal human need. This section will help prepare both prospective and current agriculture educators to meet the individual needs of all students.

Special Needs Students Defined

Some students are classified as "handicapped" by Wisconsin's legally mandated multidisciplinary team (M-team) processes and are labeled as mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, orthopedically impaired, or health impaired, or as having a specific learning disability. Because of their handicapping condition, these students find it difficult to succeed in regular agriculture education programs without special assistance.

"Disadvantaged" students have economic or academic disadvantages that may make them unable to succeed in agriculture education programs without special services and assistance. Students participating in free-lunch, reduced-lunch, or Aid to Families with Dependent Children programs are "economically disadvantaged." Students who score below the twenty-fifth percentile on a standardized achievement or aptitude test, whose secondary school grades are below 2.0 on a 4.0 scale, or who fail to attain minimal academic competencies may be considered "academically disadvantaged." Students who have limited English proficiency and those who are dropouts or potential dropouts from secondary school also fit into this category.

Impact of Current Legislation

Education for All Handicapped Children Act

The primary goal of Public Law 94-142, the Education for All Handicapped Children Act, is equal educational opportunity for all handicapped individuals who require special services. The legislation stresses that the handicapped are to be educated in the least-restrictive environment. Since the act's passage in 1975, the placement of handicapped students in regular classes has increased. This process, called "mainstreaming," has placed handicapped students in agriculture education classes.

Job Training Partnership Act

The Job Training Partnership Act, Public Law 97-300, establishes programs to prepare youth and unskilled adults to enter the labor force. It also affords job training to economically disadvantaged individuals and others who face serious barriers to employment and are in special need of such training to obtain productive employment.

Carl Perkins Vocational Education Act

The Carl Perkins Vocational Education Act of 1984, Public Law 98-524, requires that the full range of vocational education programs be accessible to all people, including the handicapped and disadvantaged. Currently in the reauthorization process, this act continues federal assistance for vocational education through the fiscal year 1989. Each state must set aside 10 percent of its federal allotment for handicapped people and 22 percent for disadvantaged individuals.

Under this act, handicapped or disadvantaged students and their parents must be informed of the opportunities available in vocational education at least one year before students may enter those programs, but no later than the beginning of ninth grade. Each handicapped or disadvantaged student who enrolls in vocational education programs will receive an assessment of interests, abilities, and special needs; special services—including adaptation of the curriculum, instruction, and equipment and facilities—designed to meet specific student needs as determined by the assessment; guidance and career development activities conducted by professionally trained counselors; and transitional services from school to postschool employment and career opportunities. A sample of the kinds of questions asked in the secondary program evaluation is included at the end of this section.

Vocational Assessment

Vocational assessment, as an ongoing process, provides information about an individual's interests, abilities, and special needs. This usually begins before a student is placed in a specific program, and, as a minimum, it should be updated annually. The vocational assessment process should also provide useful information concerning student employability skills, such as work habits, socialization skills, work attitudes, and work tolerances. This information is used to develop a comprehensive profile that can serve as a basis for educational planning.

The following questions need to be answered for each special needs student:

- Has this student achieved vocational awareness, vocational exploration, or vocational preparation?
- Which occupational area(s) is this student most interested in?
- For which occupational area(s) does this student have aptitude and ability?
- What particular learning requirements (specific needs) will need to be met if this student is to succeed in a specific vocational education program?
- What job title, potential employment outcome, or postschool goal has been tentatively identified for this student?

Individualized Education for Employment Plan

Information obtained by answering these and other questions must lead to the development of an Individualized Education for Employment Plan (IEEP), which will be the basis for offering special services. For handicapped students, the IEEP could be an expanded part of the Individualized Education Program (IEP). A sample IEP form is included at the end of this section.

It is possible that students with handicapping conditions may not be considered handicapped for the purposes of a specific vocational education program. If these students are able to succeed in an agriculture education class without direct special education assistance, curriculum modification, or materials adaptation, a statement of the full

extent of their participation in regular vocational education is all that must be included in the IEP. If a program modification in a vocational area is necessary, an IEP must be developed identifying the goals, objectives, and intervention strategies necessary to attain the goals.

Agriculture Educators' Role in the M-Team and IEP Preparation

The M-team is a group of individuals at the district level who determine a student's eligibility and need for special education services. Vocational educators are not generally viewed as regular members of the M-team, but they can be appointed as a full member or play a secondary or supplemental role at this level of the collaborative process. For example, they can provide M-team members with information about the purpose, nature, and extent of available agriculture education offerings so the group can make appropriate recommendations.

When an agriculture educator attends an M-team meeting, a large amount of data will already be available concerning the student for whom the IEP is written. Most of this data will focus on such items as IQ scores, standardized reading test scores, standardized mathematics test scores, physical characteristics, family situations, and social maturation. There may be questions about how this information pertains to agriculture education programs—questions which IEP special education personnel cannot answer because they are not familiar enough with agriculture education programs. The vocational educator has to ask questions and become a participant in the IEP process by trying to determine information about the student that is work related.

- Is the student being placed in agriculture education for the purpose of further exploration, assessment, or preparation?
- What is the student's area of vocational interest? What does he or she want to do in relationship to work?
- Does the student have prior work experience? What is the student's physical and mental capacity for work?
- Has the student participated in any type of vocational exploration program?

These questions are designed to get the committee thinking about the vocational aspect of the student's development. Frequently, handicapped students are placed in vocational education programs simply because space is available. This practice does not meet the spirit of an *individualized* program and does not lend itself to the development of an effective vocation-related IEP. When the committee has vocation-related performance data, it can make more appropriate decisions about the student's vocational development and placement. (Georgia Department of Education, Division of Program Development, Office of Vocational Education. *Working with Special Needs Students: A Handbook for Vocational Education Teachers*. Atlanta: State of Georgia, 1982, pp. 11-12.)

The special educator determines the IEP's format, but federal and state laws require the following five main components:

- a statement of the student's current educational performance;
- a statement of annual goals and short-term instructional objectives;
- an outline of specific support services to be provided to the student and the extent to which he or she will be able to participate in regular education programs;
- specific evaluation criteria and schedules for determining whether the short-term objectives are being met; and
- projections of when services will start and how long they will last.

Possible Support Services

Services are available that will enable special needs learners to participate in and benefit from regular agriculture education classes.

Adaptation of Curriculum. This means adaptation of *what* will be taught. Not all agriculture education content is of equal value to special needs students. Curriculum adaptation focuses instruction time on *essential* content, ensuring that valuable time is not devoted to less important content before the student has mastered the essentials. When adapting a curriculum, an educator should focus on a visible employment outcome to pinpoint the learning that needs to take place and eliminate unnecessary content. The educator should determine what a student *needs to know* to obtain entry-level employment and stress those concepts to the mastery level. This review may require eliminating the *nice-to-knows*.

Adaptation of Instruction. This means adaptation of *how* content will be taught. Teaching strategies that agriculture educators can use to better serve special needs students include

- developing instructional checkpoints to determine teaching effectiveness;
- starting instruction below the point at which a student is functioning;
- providing students with choices;
- using direct teaching experiences (learning by doing) as often as possible;
- considering the time element of teaching (flexibility);
- encouraging students to "think through" situations;
- involving students in FFA activities;
- using cooperative learning methods or small group activities;
- asking for feedback from students on teaching effectiveness; and
- varying the presentation of content.

Other modifications could include changes in

- grading procedures;
- test requirements;
- instructional sequence;
- classroom environment;
- project or report requirements;
- instructional pace;
- mathematics;
- listening demands;
- reading requirements; and
- writing requirements.

The student's ability to perform is more important than the time it takes to learn to perform. Once a special needs student has mastered a skill or task, actual performance time on the job will be comparable to that of a regular student. At that point, the time it took to learn will be of little significance.

Modified strategies and techniques work just as well for *non*handicapped students. This fact illustrates that students who have special needs are more like regular students than unlike them.

Adaptation of Equipment. Some agriculture education equipment can be used by special needs students without modification. When adaptations are necessary, it is usually possible to add hand controls to machines operated by foot controls or add foot

controls to machines usually operated by hand controls. Lights can replace bells or alarms for hearing-impaired students, and Brailled tape can mark control dials for visually-impaired students.

Adaptation of Facilities. Facility adaptations generally concern administrators rather than teachers, but classroom teachers can remove unnecessary obstructions to allow ample space between aisles and around equipment. General accessibility standards should be reviewed to meet the needs of the student confined to a wheelchair.

Designated Vocational Instruction Concept. A working relationship between the special educator and the agriculture educator is essential to the successful mainstreaming of special needs students. Agriculture educators and other vocational educators can work cooperatively with special educators through the Designated Vocational Instruction (DVI) approach. The DVI concept is an interdisciplinary effort between special and vocational education to improve the scope, sequence, and quality of secondary-level vocational education for special needs students.

School districts participating in the DVI effort send a team of staff members (including vocational educators, guidance counselors, and at least one certified special educator) to a university training session. At the session, special education teachers serving as designated vocational instructors learn to provide instructional support to special needs students entering and participating in vocational education programs. As a result, special education's expertise in *how* to teach is blended with vocational education's expertise in *what* to teach. The DVI teacher works with other special education teachers, helping them understand the instructional support function of the DVI concept and facilitating communication among them.

Involvement in DVI need not bring additional costs to participating school districts. For more information or a copy of the DVI handbook, call or write: Vocational/Special Education Consultant, Department of Public Instruction, 125 South Webster Street, P.O. Box 7841, Madison, WI 53707-7841; (608) 267-9256.

Special Knowledge Required

To be eligible for a license to teach in Wisconsin's elementary and secondary schools, prospective teachers now must complete at least three semester credits, or the equivalent, in exceptional education. The equivalent might consist of study in existing required courses dealing with the exceptional child or other program requirements. These programs must provide certain basic information about

- the needs areas addressed by exceptional education as defined by state (Subchapter IV, Chapter 115) and federal (Public Law 94-142) laws;
- the major characteristics of various disabilities and how to recognize their presence in children and youth;
- various alternatives for providing the least-restrictive environment for children and youth with exceptional educational needs;
- effective classroom methods of teaching children and youth with exceptional educational needs; and
- referral systems, M-team responsibilities, and the IEP processes.

Any currently certified agriculture educator who does not possess this knowledge should obtain it.

Working with Special Needs Students

Many of the techniques known to be successful with special needs students are based on common sense and teacher creativity.

Academically and Economically Disadvantaged

- Use many visual teaching techniques.
- Use a hands-on approach whenever possible.
- Simplify vocabulary in written materials.
- Involve everyone in class discussions by walking around the room and calling on students at random.
- Praise students for portions of correct answers to questions.
- Use materials with high interest and low reading levels.
- Review frequently the material already learned.
- Encourage students to compete with themselves rather than with others in class.
- Relate subject matter to real-life occurrences as much as possible.
- Use a goal-setting format in class: adopt daily goals, weekly goals, semester goals, and so on.
- Accept the fact that the student may have a different value system than yours.
- Emphasize the employment opportunities available after completing the course.
- Be a consistent role model.

Mentally Retarded

- De-emphasize academic activities, and increase emphasis on actual performance.
- Build on what the student can do, not on what the student cannot do.
- Divide each task into smaller steps, and show the student how each step relates to the whole.
- Practice positive reinforcement.
- Emphasize continually the importance of good work habits in all tasks.
- Teach only those academic functions that are critical to actual performance.
- Do not assume what the student knows—find out.
- Do not "talk down" to the student.
- Use a hands-on approach whenever possible.

Learning Disabled

- Do not "talk down" to learning-disabled students; they possess average or above-average intelligence.
- Treat the student just as others are treated in all areas except those in which the student has specific problems.
- Use primarily an auditory approach to teaching if the student has a visual-perception-related learning disability, and talk the student through what is to be done.
- Use primarily a visual approach to teaching if the student has an auditory-perception-related learning disability, and actually show students what they should do.
- Use a hands-on approach whenever possible.

Emotionally Disturbed

- Have several variations of the same activity ready for use. Don't rely on a single approach to teaching because emotionally disturbed students may be easily frustrated.
- Use constructive criticism, always pointing out what was done right as well as what was done wrong.
- Correct students in a calm, matter-of-fact manner.
- Try to ignore inappropriate behavior as long as it is not dangerous to the students. Use positive reinforcement for appropriate behavior.
- Establish classroom rules initially, not as the class goes along.
- Do not threaten—respond.
- Be consistent with punishment and reward.
- Do not confront the student in front of the class—the attention this brings to the problem may reinforce the negative behavior.
- Use a hands-on approach whenever possible.

Physically/Other-Health Impaired

- Rearrange the classroom so the student can move about as freely as possible.
- Do not unnecessarily call attention to the student's disability.
- Be prepared to provide physical assistance if necessary.
- Do not be afraid of, or for, students. Treat them as normally as possible.

Visually Impaired

- Orient the student to the classroom, describing obstacles, traffic patterns, and so forth.
- Ask sighted students to be readers, and put lessons on tape.
- Do not seat the student where there is a glare on the chalkboard, desk, or work area.
- Use contrasting chalk or ink and large, clear lettering when writing on the chalkboard or assignment sheets.
- Present material using senses other than sight.
- Provide magnification devices.

Hearing Impaired

- Face the student when speaking, and speak slowly and clearly.
- Do not hesitate to repeat a word or sentence or rephrase a question.
- When a hearing-impaired student omits certain sounds from his or her speech, do not correct the student; instead, ask the student to repeat or rephrase and, if necessary, show what he or she means.
- Be sensitive to students who are hearing impaired in one ear only.

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Sample Form B-1
Providing Adequate Preparation for Employment

The key questions asked in the Secondary Vocational Program Evaluation are summarized below. Read through the list, and determine how well your agriculture education program is preparing special needs students for employment.

Secondary Vocational Program Evaluation

1. Is information provided to special needs learners and their parents concerning the opportunities available in vocational education while they are in seventh or eighth grade?

2. Do all special needs learners enrolling in a vocational education program receive an assessment of her/his *interests*, *abilities*, and *special needs* designed to help them successfully complete the vocational education program?

3. Does the information gained in a vocational assessment result in a written plan for each special needs learner who enrolls in vocational education?

4. Does each special needs learner receive special services (adaptation of curriculum, instruction, equipment, facilities) designed to meet the *special needs* identified during a vocational assessment? Has curriculum been adapted to focus on mastering essential content first? To what extent do special education staff provide direct instructional support to special needs students enrolled in vocational classes?

5. Do vocational education staff effectively accommodate special needs learners? Are staff aware of differences and similarities between handicapped youth and disadvantaged youth? Have they been informed of the educational needs of each special needs learner?

6. Do special needs learners receive appropriate guidance counseling and career development activities?

7. Do special needs learners receive services to help them make the transition to post-school employment and career opportunities?

Sample Form B-2
Individualized Education Program

Name of student (last, first, middle)	Date of birth (mo./day/yr.)	Chron. age	Telephone ( )	IEP beginning date
Parents or legal guardian	Address (street, city, state, zip)			District of residence
Area(s) of EEN	Support services provided	District of placement	Est. percentage of time Reg. ed. %	Spec. ed. %
Precautions (physical, medical, behavioral, etc.)		Person responsible for completing IEP		

1. Summary of present levels of functioning (including academic achievement, social adaptation, self-help skills, prevocational and vocational skills, psychomotor skills, and learning potential)

2. Specific educational services to meet exceptional educational need(s)

3. Supportive and related services to meet exceptional educational need(s)

	Regular	Specially designed (goals and objectives required)
4. Physical education	☐	☐
5. Vocational education	☐	☐

Name of student _____

Annual goal statement _____

Short-term objectives	Performance criteria and evaluation procedures	Anticipated timeline		To be completed within six weeks after placement	
		Beginning	Ending	Person(s) responsible	Interventions, methods, and materials

(Repeat this page for each goal)

Appendix C

Sample Unit Evaluation Form

All sample instructional units have been field tested in local high schools. Each field testing process included a Unit Evaluation that instructors were asked to complete to assist in assessment. Since there are many concerns that should be examined in curricular development and revision efforts, a wide array of questions were included in the instrument. Most of the general questions were obtained or adapted from A Guide to Curriculum Planning (Madison, WI: Department of Public Instruction, 1985). These were supplemented with a few specific questions that were considered important for programs in agriculture.

The Unit Evaluation is divided into four sections. "Program Review" has 20 statements utilizing a Likert-type scale response and ten questions addressing instructional processes. "Special Needs Review" contains eight statements addressing aspects of special needs education and a question soliciting curricular modification suggestions for special needs students. "Bias Review" has six statements that address sex bias aspects of the instructional unit plus two summary questions on sex equity. The last section, "Content Review," has ten questions that query aspects of either the vocational or agricultural content of the instructional units. Questions in this section were developed by participants at the initial curriculum workshop sessions.

Responses obtained from field testing were summarized for each sample instructional unit. A cumulative mean value (grand mean) and standard deviation were calculated for sections one and three. The cumulative mean of 3.25 was the target grand mean for these sections. Data from sections two and four were collated and added to the instructional unit when a majority of the respondents offered similar responses.

The field testing phase of the curriculum revision was an important method to assess individual unit development or revision. A wide range of school sizes and programs were sought for field testing each unit. Due to the uniqueness of some units, this variety was not possible in every field testing effort. However, a majority of the units had a wide range of local program characteristics (enrollment size, percent of nonfarm students, high school size, female enrollment, geographical location, instructor experience) represented in the field testing sites.

Individual analysis of the instructional units, generated by the field testing, offered an important dimension to curriculum revision. The result is a series of instructional units that reflects the combined results of judgments based upon actual classroom experience.

Instructor	School
Topic	

UNIT EVALUATION

Directions: Once you have completed the unit, record your response on this form—making any suggested changes on the unit copy—and return.

Program Review

A. Check your reaction on the scale below:

		1	2	3	4	5
1.	Teacher interest in material	Low				High
2.	Student interest in material	Low				High
3.	Student participation in class	Limited				Very Active
4.	Unit objectives	Unclear				Clear
5.	Program content	Inappropriate				Very Appropriate
6.	Content includes knowledge at all levels	Low Levels				All Levels
7.	Competencies	Unclear				Clear
8.	Learning activities	Inappropriate				Very Appropriate
9.	Motivational techniques	Inappropriate				Very Appropriate
10.	Who asks questions	Mostly Teacher				Mostly Students
11.	Curriculum decision maker	Teacher				Students
12.	Question responses	Short				Long
13.	Student sense of purpose	Hazy				Well Defined
14.	Difficulty of materials	Too Easy				Too Difficult
15.	Reading level	Too Low				Too High
16.	Supplementary materials	Few				Abundant
17.	Student involvement	None				A Great Deal
18.	Facilities required	None				Very Appropriate
19.	Equipment required	None				Abundant
20.	Overall program	Ineffective				Very Effective

B. Note your response to the following questions:

1. List three topics from the subject matter outline most appropriate to teach in this district.

2. What two activities do you feel are **most important**? *(Check two learning activities.)*

   a. ☐ Lecture
   b. ☐ Discussion
   c. ☐ Questions
   d. ☐ Quizzes and tests
   e. ☐ Research
   f. ☐ Case studies
   g. ☐ Experiments
   h. ☐ Drill
   i. ☐ Games and simulations
   j. ☐ Inquiry
   k. ☐ Conceptual development
   l. ☐ Independent study
   m. ☐ Valuing
   n. ☐ Creating a model or project
   o. ☐ Community projects
   p. ☐ Other *(Specify)* _____

3. Check the type of materials you use most often to teach this unit.

   a. ☐ Books
   b. ☐ Films
   c. ☐ Filmstrips
   d. ☐ Laboratory equipment
   e. ☐ Chalkboard
   f. ☐ Games and simulations
   g. ☐ Real objects
   h. ☐ Worksheets
   i. ☐ Models
   j. ☐ Charts and diagrams
   k. ☐ Records and tapes
   l. ☐ Videotapes
   m. ☐ Computers
   n. ☐ Other *(Specify)* _____

4. If you were to make any changes in this unit, what would they be?

5. How frequently do you feel this unit meets the needs of special needs students?

☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

6. With this unit, what types of inservice would be most helpful to you?

7. What type of equipment do you need to teach this unit?

8. What type of administrative support would be most helpful?

9. What do you think is the major **strength** of this unit for your school?

10. What do you think is the major **weakness** of this unit for your school?

Special Needs Review

A. Check your reaction to the statements below.

1. **Diagnosis.** Information has been collected about:

☐ Interests
☐ Capabilities
☐ Reading levels
☐ Language skills
☐ Achievement
☐ Problems
☐ Other
☐ Not applicable

2. **Subgroups.** The following subgroups are used in class:

☐ Interest groups
☐ Reading groups
☐ Activity groups
☐ Learning pairs
☐ Committees
☐ Instructional groups
☐ Interviewing groups
☐ Committees
☐ Not used

3. **Methods and Activities.** The following are used:

☐ Inquiry lessons
☐ Homework
☐ Small group work
☐ Expository lessons
☐ Whole class activities
☐ Varied directions for subgroups
☐ Different standards for individuals
☐ Varied assignments for individuals or groups
☐ Different questions for subgroups

- ☐ Different explanations for subgroups
- ☐ Varied assessments of outcomes
- ☐ Individual work/instruction
- ☐ Not applicable

4. **Materials.** The following have been adjusted/modified:

- ☐ Study guides
- ☐ Reading lists
- ☐ Pictures
- ☐ Artifact kits
- ☐ Library resources
- ☐ Learning centers
- ☐ Rewritten materials
- ☐ Community resources
- ☐ Practice materials
- ☐ Media for individuals and groups
- ☐ Taped materials
- ☐ Reading materials on various levels

5. **Independent Study.** The following have been adjusted:

- ☐ Sources of data
- ☐ Presentation form
- ☐ Depth and breadth
- ☐ People to interview
- ☐ Additional assistance
- ☐ Type of report expected
- ☐ Topics to investigate
- ☐ Not available
- ☐ Other

6. **Individual Tutorial.** Assistance is provided by:

- ☐ Teacher
- ☐ Parent
- ☐ Computer
- ☐ Volunteer
- ☐ Another pupil
- ☐ Programmed materials
- ☐ Teacher aide
- ☐ Not available
- ☐ Other

7. **Special instruction.** Specific provision is made for:

- ☐ Remedial
- ☐ Research teacher
- ☐ Team teaching
- ☐ Laboratory work
- ☐ Differentiated staffing
- ☐ Not available

8. **Standards and Evaluation.** Adjustments have been made in:

- ☐ Quantitative expectations
- ☐ Qualitative expectations
- ☐ Concept development process
- ☐ Information outcomes expected
- ☐ Main ideas presented
- ☐ Self-evaluation process
- ☐ Vocabulary development process
- ☐ Required uses of maps, reading, and other skills
- ☐ Evaluative charts
- ☐ Inquiry processes
- ☐ Testing
- ☐ Not applicable

B. List a specific recommendation for modifying a learning activity, the subject matter outline, or competency for special needs students.

Bias Review

A. Check the appropriate answer for each statement that follows:

1. **Expectations.** I have the same behavioral and achievement expectations for males as for females.

   ☐ Always ☐ Often ☐ Sometimes ☐ Never ☐ N/A

2. **Duties.** I assign females and males to duties and responsibilities on the basis of ability rather than gender.

   ☐ Always ☐ Often ☐ Sometimes ☐ Never ☐ N/A

3. **Language.** I use nonsexist language; for example, I do not refer to all doctors and lawyers as "he," or all nurses as "she."

   ☐ Always ☐ Often ☐ Sometimes ☐ Never ☐ N/A

4. **Attitude.** I take the idea of equity seriously; for example, I do not put down males or females or joke about their abilities, roles, or ethnic backgrounds.

   ☐ Always ☐ Often ☐ Sometimes ☐ Never ☐ N/A

5. **Environment.** All bulletin boards and visual materials are nonsexist and nonracist, showing men and women in a variety of roles that reflect the many interests of both.

   ☐ Always ☐ Often ☐ Sometimes ☐ Never ☐ N/A

6. **Curriculum.**

   a. The curriculum addresses the needs and interests of both males and females.

      ☐ Always ☐ Often ☐ Sometimes ☐ Never ☐ N/A

   b. The curriculum recognizes the contributions of both sexes.

      ☐ Always ☐ Often ☐ Sometimes ☐ Never ☐ N/A

   c. The curriculum provides for the equal treatment of both sexes in all subject areas.

      ☐ Always ☐ Often ☐ Sometimes ☐ Never ☐ N/A

   d. The curriculum helps males and females explore the wide range of roles and career options available to them.

      ☐ Always ☐ Often ☐ Sometimes ☐ Never ☐ N/A

B. Check your overall feeling about the sex equity of your school's agriculture program.

1. Basically sex fair

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Needs some improvement

Needs much improvement

2. Consider your rating. List something specific you could do to help achieve sex equity in your area(s) of responsibility.

Content Review

During the teaching of this unit:

Check if not applicable.

☐ 1. What scientific principles and their applications were taught?

☐ 2. What economic principles and mathematics applications were taught?

Principles:

Applications:

☐ 3. What possible entrepreneurial opportunities were discussed?

☐ 4. What computer software programs were used?

☐ 5. What environmental issues were addressed?

☐ 6. What issues dealing with natural resources were addressed?

☐ 7. What possible future careers related to this unit were discussed?

☐ 8. What curriculum units do you believe should be taught in every agriculture education department to all students?

☐ 9. Did you use problem-solving methodology in teaching this unit?

☐ 10. How many days did this unit require?